COLONY AND PROTECTORATE OF KENYA.

ANNUAL MEDICAL REPORT

FOR THE

YEAR ENDED 31st DECEMBER, 1927

INCLUDING

THE ANNUAL REPORT

OF THE

MEDICAL RESEARCH LABORATORY

FOR THE YEAR

1927.

NAIROBI:
PRINTED BY THE GOVERNMENT PRINTER
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MEDICAL DEPARTMENT,

HEAD OFFICES,

No. 16/711/66. *Nairobi, 23rd July*, 1928.

Sir,

I have the honour to submit for the information of His Excellency the Governor, and for transmission to the Right Honourable the Secretary of State, the Medical Report on the Health and Sanitary Conditions of the Colony and Protectorate of Kenya for the year 1927, together with the Returns, etc., appended thereto.

I have the honour to be,

Sir,

Your obedient servant,

JOHN L. GILKS,

Director of Medical and Sanitary Services.

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ADMINISTRATION.

In the 1926 Report a full account was given of the general administrative arrangements of the Department and the distribution of the staff. The effect produced by the large increase allowed for that year was set forth. For the year 1927 a small increase only was sanctioned. Two additional medical officers were provided for, one a lady medical officer and the second for work in connection with the organized training of African staff which it was hoped would be commenced during the year. The appointment of a lady medical officer is likely to facilitate work among women and children. The post was not filled during the year.

At the end of the year out of a total of 55 medical posts there existed three vacancies, viz., one medical officer, one sanitation officer, and one senior bacteriologist.

The position arising from the appointment of a large number of officers in 1926 without a corresponding increase in sight to allow for leave was detailed in the 1926 Report, as were also the difficulties in connection with housing. No material change occurred in 1927, but it was found possible to post medical officers to Kitui and Teita. Provision had been made in the 1925 Estimates for a medical officer for Kitui, hitherto a sub-station in charge of a sub-assistant surgeon, but the entire lack of housing had prevented a posting being made. Temporary accommodation was provided in 1927, pending the erection of a house and hospital out of loan funds.

The appointment of a medical officer for the Teita Reserve has for long been desirable. The district is compact and the population, though affected by disease, is one showing considerable possibilities of advancement. The loan of a house made a posting possible during the year. The selection of a site suitable for a hospital for the district was not completed in the period under review.

An officer was posted as medical officer of health to Nakuru; this allowed further progress to be made in the bringing of that important centre of the grain trade under sanitary administration. In addition to Nakuru and the surrounding district the Eldoret and Kitale Districts were included under the supervision of the Medical Officer of Health, Nakuru. The total area is far too large for one officer and it is satisfactory to note that provision was made in the 1928 Estimates for a separate medical officer of health for the Kitale and Eldoret Districts.

The first posting of a sanitary inspector to a native reserve eventuated during the year. In the Fort Hall Reserve a certain amount of interest is being taken by the natives in the question of the provision of a better type of house. It appears desirable to foster and direct the movement by affording both the natives and the administration the advice that can be given by an officer with special training in the subject. The sanitary conditions of the station and its surroundings have been improved but the chief work which is being undertaken is the training of natives in the rudiments of sanitary house building as such can be attained in the Reserve and with the resources of the Reserve with the object of fitting them to advise and instruct others in the villages. The syllabus of training is referred to in the section following.

In addition to the creation of two new medical posts the 1927 Estimates allowed for the appointment of an extra European clerk and for a sergeant instructor. The latter appointment was not filled as the uncertainty as to the future site of the Native Hospital at Nairobi did not allow for the erection of buildings necessary if the training of native staff is to be proceeded with.

ESTABLISHMENT.

The establishment of the Medical Department as sanctioned for the year 1927 was as follows :—

Administrative Division.

The establishment of the Medical Department as sanctioned for the year 1927, was as follows :—

Director of Medical and Sanitary Services	1
Deputy Director of Medical Service	1
Deputy Director of Sanitary Service	1
Senior Medical Officer	1
Senior Sanitation Officer	1
Chief Sanitary Inspector	1
Medical Storekeeper	1
Office Superintendent	1
Accountant	1
Clerks	6
Stenographers	7
1st Grade Clerks	2
2nd Grade Clerks	16
4th Grade Clerks	2
2nd Grade Issuers of Medical Stores	2
Messengers, Packers, Office Boys, etc.	18

Medical Division.

Surgical Specialist	1
Senior Medical Officers	5
Medical Officers	32
District Surgeons	3
Assistant Surgeons	2
Dispensers	3
Matron	1
Nursing Sisters	27
Male Nursing Orderlies	3
Wardmaster	1
Sergeant Instructor	1
Superintendent, Mental Hospital	1
Matron, Mental Hospital	1
Assistant Matron, Mental Hospital	1
Warders, Mental Hospital	2
Assistant Surgeons	3
Sub-Assistant Surgeons	22
Compounders	8
Motor Car Drivers	5
Native Hospital Attendants	(as necessary).
Mental Hospital Attendants	(as necessary).

Sanitation Division.

Senior Sanitation Officers	2
Sanitation Officers	7
Senior Sanitary Inspectors	3
Sanitary Inspectors	22
Sanitary Overseers	6
Superintendent of Infectious Diseases Hospital	1
Nursing Sisters	4
Vaccinators	(as necessary).
Native Attendants for Infectious Diseases Hospital, Leper Lazarettes and Quarantine Stations	(as necessary).
Mechanics and Greasers	2

Laboratory Division.

Deputy Director of Laboratory Services	1
1st Assistant Bacteriologist	1
Assistant Bacteriologists	3
Government Analyst	1
Chemical Officer	1
Entomologists	2
Laboratory Assistants	4
European Laboratory Assistants (Learner grade)	4
1st Grade Laboratory Assistant	1

Laboratory Division—*continued.*

2nd Grade Laboratory Assistant	1
3rd Grade Laboratory Assistants	2
Clerk, 3rd Grade	1
African Laboratory Assistants (Learner grade)	12
Native Laboratory Attendants	(as necessary).

The principal changes occurring among the staff during the year are indicated in Table I of the returns appended to the report.

During the year a draft scheme for the medical services of the Native Reserves of the Country, so far as can be seen with our present knowledge, was presented to Government. The lines on which sanitary progress can be attained were indicated and hospitalization was arranged for on the basis of one bed per thousand of the population. The scheme allows for hospitalization to be effected by either Government or non-Government agency. An indication of the staff required and the total cost was afforded. Intimation of acceptance or otherwise had not been received at the end of the year.

Organization of Native Subordinate Staff.

As already indicated uncertainty as to the future site of the Native Hospital, Nairobi, prevented the erection of buildings required to house and teach boys under training. Towards the end of the year permission was afforded to proceed with buildings of a temporary nature. It is hoped that progress can be recorded during 1928 in this important matter.

The scheme for training as originally presented has been modified considerably. Instead of a properly constituted corps it is proposed, as a beginning, to proceed by a system of apprenticeship as adopted in the workshops of the Kenya and Uganda Railway. At its inception a comparatively small number of boys will be in training.

The training of female dressers at Mombasa has been continued and the results continue to be satisfactory.

At the Laboratory organized instruction has been given to natives for some time past. A useful type of assistant capable of performing the routine staining and preliminary examination of slides is being produced.

The training of dispensers is being continued. Two trained natives have now important duties in connection with branch dispensaries in Nairobi.

The important new activity in the training of native sanitary assistants at Fort Hall has already been mentioned. Instruction is being given in the manufacture of the following :—

a simple door,
a simple window,
a pit latrine,
a rat-proof grain store,
a bed,
a table, and
a chair.

In addition, the boys under training are being shown how to set out and build a simple type of brick hut. During the course, instruction is given in elementary hygiene and sanitation and the manner in which disease can be avoided by the use of properly designed houses and simple sanitary contrivances.

Library, Publications and Propaganda.

The Committee mentioned in the 1926 Report as likely to take over the control of the library has been established and is doing good work. Frequent additions are made to the collection of books and periodicals, and information as to these is circulated.

The "Kenya Medical Journal" continued publication throughout the year and proves itself a useful medium for the circulation of ideas. As a result of a notification to the effect that the Tanganyika branch of the British Medical Association intended to make the Journal its official organ for publication of its communications, the title was changed to the "Kenya and East African Medical Journal."

A pamphlet on malaria was prepared during the year. Circulation was postponed until the rains of 1928 were probably imminent.

Legislation.

Owing to the rapid development which continues to take place throughout the Colony the need for additional and more specific public health and sanitary legislation is becoming increasingly urgent. Although no new legislation of importance affecting the public health was passed during the year the amendment of existing law and the drafting of rules and regulations has occupied much of the time of the Administrative Division of the Department.

The draft Drainage Regulations which have been referred to on several occasions in previous reports were completed by the end of the year and are at present under consideration by Government.

It is to be regretted that similar progress has not been made with the draft Building Regulations. The services of an engineer with municipal experience are essential in this matter. A modern comprehensive code of Building Regulations is urgently required if development is to proceed on proper lines and if the errors which have resulted in the insanitary conditions which exist in Nairobi and Mombasa are to be obviated in other townships in the Colony.

EXTRA DEPARTMENTAL.

1.—REGISTRATION OF MEDICAL PRACTITIONERS AND DENTISTS.

The Ordinance governing registration came into force on the 24th September, 1910.

Since that date and up to the end of the year the following have been placed on the Register :—

Registered Medical Practitioners	210
Licensed Medical Practitioners	6
Dentists	19

One hundred and nine medical practitioners were registered for Government service, and one hundred and one as private practitioners.

In 1927, twenty-one new entries were made in the Register, one dentist, twelve private medical practitioners and eight members of the Government Medical Service. Of the new private practitioners, three had gained their diplomas in India.

The Board nominated for the purposes of the Ordinance consisted of :—

The Director of Medical and Sanitary Services (*Chairman*),
Dr. A. R. Paterson,
Dr. C. J. Wilson, M.C.,
Dr. W. H. Kauntze, M.B.E.,
Dr. A. J. Jex-Blake,
Dr. R. W. Burkitt,

with the Director of Medical and Sanitary Services as Chairman and Registrar.

No meeting was held during the year.

2.—THE DRUGS AND POISONS ORDINANCE, 1909.

This Ordinance controls the licensing of chemists and druggists as well as the sale of poisons throughout the country.

Fifty-two names have been placed on the Register since the introduction of the Ordinance to the end of 1927.

The Board appointed under the Ordinance consisted of the following :—

The Director of Medical and Sanitary Services (*Chairman*),
Dr. A. R. Paterson,
Dr. C. J. Wilson, M.C.,
Dr. W. H. Kauntze, M.B.E.,
A. A. White, Esq., M.P.S.,
L. A. Howse, Esq., M.P.S.,

with the Director of Medical and Sanitary Services as Chairman and Registrar.

Four meetings were held during the year.

A recommendation was made to Government that it was essential that the clause in the Drugs and Poisons Ordinance relating to local examination should be repealed. It was pointed out that facilities for the training of chemists and druggists up to modern standards do not exist in the country, that material requisite for the conducting of examinations is not available and that properly qualified examiners are not in residence. Under the law as it stands it is obligatory on the Board appointed under the Ordinance to hold examinations twice yearly. The matter was under consideration at the end of the year.

3.—THE PUBLIC HEALTH ORDINANCE, 1913.

The Board established under this Ordinance deals with proposals for the sub-division into building sites of land in the neighbourhood of townships. Eight meetings were held during the year.

The Annual Report of the proceedings of the Board will be found in Appendix B.

4.—THE PUBLIC HEALTH ORDINANCE, 1921.

Under this Ordinance there is established a Board—the Central Board of Health—with the Director of Medical and Sanitary Services as Chairman. The function of the Board is to advise the Governor on any matter affecting the public health.

Three meetings were held during the year.

The Annual Report of the proceedings of the Board will be found in Appendix C.

FINANCIAL.

The total of the sanctioned estimates for the Medical Department for the year 1927 was £198,265, an increase of £19,301 over the previous year.

The total for personal emoluments was increased by £1,800 to allow for the appointment of 2 additional Medical Officers, a sergeant instructor for the proposed African training institution, and a European clerk.

The comparative table of the sanctioned estimates and expenditure of the Medical Department for the past three years is as follows :—

Year.	Sanctioned Estimates.	Sanctioned Extra-ordinary Estimates.	Total Sanctioned.	Actual Recurrent Expenditure.	Actual Extra ordinary Expenditure.
	£	£	£	£	£
1925	134,031	375	134,406	132.637	320
1926	178,964	1,000	179,964	160,654	Nil.
1927	198,265	Nil.	198,265	180,227	Nil.

No new votes appeared.

The actual expenditure in the year was £18,038 less than the sanctioned total.

The revenue collected amounted to £21,197 as against £18,181 in 1926.

Of the total estimated expenditure in 1927 of £2,570,064 for the Colony and Protectorate, £198,265 represented expenditure on Public Health and Medical Relief, a ratio of 1 to 12.96 or 7.7 per cent.

Detailed returns of the revenue and expenditure are given in Table II at the end of the report.

PUBLIC HEALTH.

No considerable epidemics occurred during the year. The usual outbreaks of plague were observed in various parts of the country. The occurrence of smallpox in and around Nairobi occasioned a considerable amount of uneasiness. Fortunately no general spread occurred. The malaria epidemic of 1926 did not recur, probably owing to the deficient rainfall.

The fact that the country was to a large extent free from epidemics should not be held to indicate that the public health is good or even satisfactory. In the absence of full statistics it is impossible to give any definite facts but certain broad conclusions can be stated.

The general standard of public health in the country must of necessity be largely regulated under present circumstances by the standard obtaining among the native population. The native, from economic and industrial reasons, is in fairly close contact in the settled areas with members of the other communities and communicable disease affecting the natives cannot fail to make its presence felt among Europeans and others.

It has been indicated in previous reports that the general health of the native population is far from satisfactory. The native is frequently undernourished and his sanitary environment in the Reserves is primitive to a degree. As a result communicable disease is rife. Malaria, plague, dysentery, helminthiasis, all preventable diseases, take their toll of life and of economic efficiency in the Reserves and are carried by the labourer when he seeks work on estates or in the towns. The malaria epidemic of 1926 affords an example of the spread to the immigrant communities of a disease originally endemic among the native population.

The diseases which affect the native are for the most part diseases of uncivilized communities and arise from a neglect of simple rules of health. They flourished formerly in what are now the civilised communities of other lands and their disappearance is due in large part to the observance of hygienic measures, basically simple, and the spread of education in hygiene.

The measures, largely educational, which have been successful elsewhere in the reduction of communicable disease will be successful in Africa if properly applied. Education is required not only in the Reserves, though it is here that the root problem appears, but also in the settled areas. Employers of labour and township or municipal authorities must realize that the native living under insanitary conditions is a danger to the public health of the farm or township and that proper provision must be made for his accommodation under sanitary conditions if the health of the other communities is to remain satisfactory and economic progress is not to be retarded.

It has been stated that the public health in the Reserves is poor. There is no doubt that the statement expresses a fact but there are few figures from which accurate conclusions can be drawn. Figures exist relating to admissions to hospitals and attendances at out-patient departments or dispensaries but there is little to show the condition of the population that does not seek medical aid. It has been stated that in many districts the inhabitants do not know what it is to be really fit and that, in consequence, their standards of what constitutes good health are considerably lower than obtain among European communities. It is certainly true that the majority of natives suffer from helminthiasis and that in some districts yaws is almost universal.

In order to obtain definite figures statistical sheets have been prepared and instructions have been issued that observations have to be recorded concerning individuals or groups of individuals who have not considered it necessary to apply for medical aid. The collection of data will be slow but valuable information will be forthcoming on which it will be possible to base administrative measures for the improvement of the public health.

For one district we have figures which give definite information as regards the state of the public health in a native reserve. As one of the preliminaries to the undertaking of an anchylostomiasis campaign in the Digo Reserve, admittedly an unhealthy area, it was thought desirable to perform rapid trial surveys of the population. The results are shown below :—

Number examined :—

Adults	... ...	525
Children	... ...	132
	Total ...	657

Among the above the following observations were recorded :—

Nourishment unsatisfactory	425
Anæmia	570
Pyorrhoea	406
Hæmic murmurs	546
Enlarged spleen (adults)	225
Enlarged spleen (children)	98
Tuberculosis	159
Bilharzia	38
Yaws	446
Syphilis	2
Gonorrhoea	5

Examination of the fæces of 436 of the above was carried out. The results showed :—

Anchylostomes present	344
Ascarides	66
Trichuris	26
Strongyloides	5
Tænia	10
Oxyuris	2

It should be noted that a single rapid examination only was made of the fæces. The actual infestation is therefore considerably higher than is represented by the figures.

The findings varied very much in the different villages and locations.

The figures for tuberculosis are alarming. Diagnosis was usually made on the clinical findings but in cases of which rapid microscopical examination of the sputum was made 50 per cent. were positive.

MAJOR ENDEMIC AND EPIDEMIC DISEASES.

1.—MALARIA.

The number of cases returned as having received treatment at Government institutions in 1927 was 24,086 as against 42,972 in 1926. Whilst malaria remains the most important disease with which the Colony has to contend no recrudescence of the epidemic of 1926 was experienced during the period under review. The menace, however, remains.

The cases which came under observation are classified as :—

Sub tertian	2,933
Benign tertian	95
Quartan	70
Undifferentiated ...	20,988
	24,086

Preventive Measures.

Investigations regarding anopheline breeding grounds have now been carried out by the Entomologist in a number of townships in the Colony. As a result of these investigations and the recommendations made, minor works have been undertaken at a few places but on the whole the situation remains much the same as described in previous reports.

The outstanding event of the year in connection with malaria control was the allocation by Government of £20,000 for anti-malarial work in the Nairobi area. The Municipal Corporation has agreed to contribute an equal amount, and the Kenya and Uganda Railway Authorities have accepted the responsibility for the eradication of breeding grounds in the area under their control. The money was not available until the 1928 financial year, but an Anti-Malarial Works Committee under the chairmanship of the Commissioner for Local Government and Lands was appointed and arrangements were completed for commencing operations early in the present year.

Whilst it is satisfactory to be able to report that steps are being taken to tackle the malaria problem in the Nairobi area the claims of other areas have not yet been recognized.

Ordinary routine anti-malaria measures including oiling, filling in of excavations and minor drainage schemes have been undertaken by the Department in several of the larger townships, and in Mombasa in particular these activities have met with a considerable measure of success.

Local authorities in general are taking an increasing interest in preventive measures in their areas, but the lessons of the epidemic of 1926 are to some extent already being forgotten.

2.—BLACKWATER FEVER.

A drop occurred in the returns of cases of blackwater fever. The comparative table is as follows :—

	Cases.	*Deaths.*
1923 ...	27 ...	6
1924 ...	20 ...	9
1925 ...	50 ...	11
1926 ...	52 ...	16
1927 ...	34 ...	7

Sixteen cases with three deaths occurred among the European population. Mombasa, Nairobi and Voi returned 6, 5 and 4 cases respectively.

3.—PLAGUE.

(1) Incidence of the Disease.

In the native reserves the incidence of plague was considerably less than in previous years. In the Kavirondo Districts of the Nyanza Province small outbreaks occurred throughout the year but in no case did the disease assume serious epidemic proportions. Sporadic outbreaks also occurred in the Kikuyu Reserves.

In the Townships and settled areas numerous outbreaks of plague were reported.

In the Nakuru area there were 97 cases with 60 deaths, 14 of which occurred in the Township and 83 in the surrounding district. A large area was affected and cases occurred, among other places, on 37 different farms. Early in the year a marked increase in the rat population of the district was noted and an interesting feature of the outbreak was the discovery of plague infection in field rats of the Arvincanthis species for the first time.

In Kisumu, with the exception of one case of imported plague, no cases were reported during the year.

In Nairobi 70 cases of the disease occurred with 53 deaths. A number of different outbreaks were reported but the disease was almost entirely confined to the obviously insanitary areas of the town.

In Mombasa plague occurred on two occasions during the year, being limited, however, to three cases.

(2) Anti-Plague Measures.

The usual anti-plague measures were carried out throughout the year being intensified in all areas on the occurrence of outbreaks of the disease.

The numbers of rats destroyed in some of the larger Townships were as follows :—

	1925.	1926.	1927.
Nairobi ...	19,908	46,827	137,116
Mombasa ...	19,291	40,014	39,241
Kisumu ...	4,087	10,255	16,291
Nakuru ...	—	—	1,344
Eldoret ...	—	—	1,263

The rat destruction campaign was also continued in the North and Central Kavirondo Native Reserves. The totals for the year are given in the attached tables.

The Laboratory issued 46,478 doses of plague vaccine during the year.

A large amount of work was devoted at the Laboratory with considerable success to the production of a more efficient plague vaccine. The details will be found in the Laboratory section of the report.

RAT DESTRUCTION RETURN—NORTH KAVIRONDO AND NANDI RESERVES, 1927

Location.	Chief.	Huts.	Number of Rats.												Total.	
			January	February	March	April	May	June	July	August	September	October	November	December	Number of Rats	No. per Hut
Wanga	Mumia ..	8,102	..	..	..	..	6,500	..	..	..	..	..	..	2,300	8,800	1·1
Marama	Mulama ..	8,112	3,359	2,593	3,598	4,899	3,012	1,577	..	..	1,896	1,036	1,816	1,903	25,689	3·1
Kisa	,, ..	1,518	..	..	..	..	..	..	1,343	..	..	..	320	..	1,663	1·1
Bunyore	Zakai ..	9,518	17,660	11,988	29,155	16,967	15,720	15,720	12,735	5,618	22,752	19,417	25,385	15,624	208,741	21·9
E. Kakamega	Osore ..	2,966	..	5,222	3,895	..	7,288	..	1,085	2,010	2,030	6,927	..	..	28,457	9 6
W. Kakamega	Mulimo ..	5,636	120,367	13,764	..	15,911	..	..	..	..	..	..	15,416	37,166	202,624	35·9
Watsotso	Mutsembo ..	1,900	..	..	1,600	3,159	3,847	3,935	760	1,723	..	1,723	1,400	2,825	20,972	11·0
Mukulu	Ropando ..	1,783	1,340	..	1,320	..	150	1,300	..	1,050	1,000	..	1,100	10,001	17,261	9·6
Kakalelwa	Ndombi ..	1,741	1,508	1,508	3,392	..	4,200	1,580	..	2,634	2,000	1,450	1,877	..	20,149	11·5
Kabras	Mwanza ..	2,738	..	..	..	..	744	1,028	..	..	..	..	1,606	2,578	5,956	2·2
S. Kitosh	Sudi	6,965	1,977	..	..	..	23,225	4,269	12,535	2,634	7,930	2,960	4,385	3,170	63,085	9·0
N. Kitosh	Murunga ..	9,332	..	..	..	..	2,789	3,953	..	..	..	..	..	..	6,742	0·7
Marach	Oduyo ..	4,179	..	..	..	..	..	360	..	..	..	..	1,930	3,144	5,434	1·3
Ohayo	Makero ..	4,931	8,116	..	7,770	..	4,190	9,512	..	85,400	..	538	9,330	6,180	131,036	26·5
Waholo	Were ..	2,414	4,455	2,127	2,406	2,439	..	2,570	..	3,107	..	3,984	..	2,077	23,165	9·6
Wamia	Nyasata ..	6,597	..	..	9,050	9,050	8,060	..	5,570	4,750	7,654	8,759	3,054	3,300	59,247	8·9
Tiuiki	Amiani ..	4,855	5,740	..	7,200	..	9,000	44,500	..	14,400	..	5,100	5,900	6,800	98,640	20·3
Wooidakho	Gorio	10,147	31,081	3,750	13,067	9,970	11,407	8,758	10,212	8,786	..	12,144	2,350	1,253	112,778	11·1
N. Maragoli	Odanga															
S. Maragoli	.. ..	6,287	203,127	6,879	6,879	5,298	6,023	4,818	3,485	9,893	..	7,847	9,088	..	263,337	41·8
Kakamega Township ..	.. ..	..	73	53	78	90	88	130	98	154	..	169	126	135	1,194	..
		99,721	398,803	47,884	89,410	67,783	106,243	104,010	47,823	142,159	45,262	72,054	85,083	98,456	1,304,970	..

RAT DESTRUCTION RETURN—CENTRAL KAVIRONDO DISTRICT, 1927

Location.	Chief.	Huts.	Number of Rats.												Total.	
			January	February	March	April	May	June	July	August	September	October	November	December	Number of Rats	No. per Hut
Samia	Makudi ..	12,692	11,940	20,770	17,103	5,270	8,500	8,620	6,430	11,850	9,440	12,890	9,860	9,760	132,433	1·4
N. Ugenya	Kaganda ..	8,783	..	..	..	..	4,450	..	..	3,690	4,300	..	..	..	12,440	1·4
S. Ugenya	Ndonji ..	2,276	15,000	9,420	6,980	1,940	3,100	2,140	3,780	3,260	3,200	2,740	3,560	3,150	58,270	25·6
N. Gem	Ogada ..	8,628	..	..	..	3,840	7,400	1,820	4,800	4,130	4,440	5,200	4,700	5,400	41,730	4·8
S. Gem	Ndeda ..	5,199	4,200	3,500	3,800	3,920	..	2,470	4,440	2,750	..	4,300	5,720	4,200	39,300	7·5
Alego	Ngonga ..	16,138	..	..	..	6,210	5,220	8,400	5,300	9,220	7,860	8,320	7,800	7,840	66,170	4·1
Sakwa	Olalu ..	4,981	..	..	..	2,740	..	3,900	..	2,400	3,250	3,900	..	2,100	81,290	3·6
Nyoma	Natham ..	4,294	..	1,450	1,960	..	1,500	..	..	3,900	2,700	2,100	3,200	1,260	18,070	4·2
Asembo	Odindo ..	5,407	..	..	570	1,200	..	600	..	1,300	..	..	..	..	3,670	0·6
Sagam	Orao ..	1,829	5,000	6,200	6,987	4,600	3,600	3,750	1,060	2,900	..	1,560	..	1,720	37,377	20·4
S. Tiriki	Chewya ..	2,232	6,200	8,560	5,400	4,900	4,635	3,400	3,800	3,700	3,060	..	6,140	2,430	52,225	23·3
Seme	Nyawara ..	10,145	6,700	..	2,220	4,420	5,280	3,560	1,240	..	..	3,430	..	..	26,850	2·6
		82,604	49,040	49,900	45,020	39,040	43,685	38,660	30,850	49,100	38,250	44,440	40,980	37,860	506,825	..

4.—TRYPANOSOMIASIS.

In the 1926 Report a description was given of the census then being undertaken on the Lake shore for the purpose of detecting and treating cases of sleeping sickness. The census was completed during 1927 and at the end of the year the cases which had not received their full course of treatment were still being dealt with. The report of the medical officer engaged on the work is reproduced as an appendix. It will be noted that except in three well-defined areas the disease is very scattered and moreover that it appears to be of a very mild type. Only 388 cases in all were discovered.

Recommendations in accordance with those made by the medical officer in charge of the census operations were put forward to the Administration. At the end of the year arrangements for moving the small population from the intensely infected location in South Kavirondo had been completed. Difficulties have occurred in connection with the measures proposed for Uyoma and Seme.

5.—RELAPSING FEVER.

Only 79 cases of this disease were reported during the year as compared with 188 cases in 1926.

Comparative figures for the past five years are as follows :—

1923	...	...	65
1924	...	...	91
1925	...	...	121
1926	...	...	188
1927	...	...	79

Only 5 cases were reported as coming under observation at Fort Hall as against 81 in 1926. Meru shows 36 cases and Nairobi 14. Teita, a new medical centre, reports 13 cases, all children.

The inspection of suspected ornithodorus infested housing in labour camps has been continued through the year and the improvements that have been carried out may partly be responsible for the lower incidence of this disease.

6.—DENGUE.

Eighteen cases of dengue occurred during the year of which 5 were Europeans.

7.—YAWS.

The total number of cases recorded as treated in hospitals, at dispensaries or by medical officers on tour was 70,253.

The number of cases recorded for the last six years are as follows :—

1922	...	...	24,233
1923	...	...	64,344
1924	...	...	45,527
1925	...	...	50,584
1926	...	...	66,883
1927	...	...	70,253

In addition to the above total 11,336 injections of bismuth are reported as having been given at dispensaries in the Keruguya District of the Kikuyu Reserve, a district where syphilis is not met with. It is fair, therefore, to assume that the injections were given on account of yaws. The actual number of cases is not specified.

The considerable increase in the total may be accounted for by the increased activities taking place in the reserves.

The question invariably arises as to the effect of the treatment which has been carried out now for some years in certain districts. The impression is that the number of cases is diminishing. While statistics as to the prevalence of the disease are lacking the comparative table of figures from Fort Hall may be an indication as to the effect that is being produced :—

1925	...	...	15,856
1926	...	...	13,596
1927	...	...	10,208

The disease, however, still remains a formidable menace to the Colony and its complete eradication in any district is extremely difficult under present conditions. Whilst the native is willing to undergo treatment when obvious signs of the disease are present the disappearance of the lesions usually means the discontinuance of injections with the result that the probability of relapse is ever present.

In Nairobi systematic extended treatment with continuous examination of serum reaction has been carried out at the Infectious Diseases Hospital on a number of cases. The investigation will be concluded and the results will be available in 1928. Some definite indication of the value of bismuth treatment will have been attained.

As in the previous year the two bismuth salts used have been sodium potassium bismutho tartrate and sodium bismuth tartrate. The reports as to the efficiency of the two salts in producing healing of lesions have varied very considerably. The general consensus of opinion appears to be that the salts at present used are not so efficient as the original salt as produced in the Laboratory. Experiments with other bismuth salts are being tried. Metallic bismuth has also been used, the results of which appear to be slower but equally effective.

8.—SYPHILLIS.

The total number of cases treated during the year was 17,054 as compared with 16,218 in 1926.

The figures for the past six years are as follows :—

1922	...	...	2,896
1923	...	...	6,532
1924	...	...	11,492
1925	...	...	13,581
1926	...	...	16,218
1927	...	...	17,054

In addition large numbers were treated by dressers at sub-dispensaries. The figures as to cases are not reliable. The Central Kavirondo District returns a total of 10,315 injections for syphilis given by dressers while large numbers were treated by the medical officer engaged on the sleeping sickness census and his staff.

With the exception of the Central and South Kavirondo Districts the disease appears to be prevalent mainly in the larger centres of population; townships, trading centres and the so-called Swahili villages which are found in most districts producing the largest number of cases. In the Kavirondo Reserves the Local Native Councils are taking an increasing interest in the suppression of the disease. The decision recorded in the 1926 Report to the effect that venereal disease rules were *ultra vires* the Native Authority Ordinance has been reversed. Specific rules have now been promulgated.

Notwithstanding the increased interest taken by the Local Native Councils the position with regard to syphilis is not satisfactory. The younger generation remain apathetic and do not apply for treatment or if they do cannot be pursuaded to attend with any regularity. The difficulty was emphasized in last year's report.

In the larger townships some progress can be recorded. Clinics and treatment centres are gradually being established. The number of patients attending these centres is increasing but the usual difficulties in regard to continuous treatment are being experienced.

Towards the end of the year a new venereal ward at the Infectious Diseases Hospital, Nairobi, was nearing completion. This ward which is divided into male and female blocks with a treatment theatre will provide accommodation for 42 patients.

9.—LEPROSY.

445 cases of leprosy were treated during the year of which 233 remained from the previous year.

The incidence of this disease in the Colony is difficult to estimate but there is little evidence that it is tending to spread.

Certain figures relating to leprosy were obtained in connection with the sleeping sickness census conducted round the Lake shore. Among a total of 128,147 individuals examined on the north shore 461 cases of leprosy were discovered, an incidence of 3.6 per thousand. It by no means follows that the incidence in the particular area has any bearing on the incidence elsewhere.

The Leper Settlement in the Coastal Area and those in connection with the Hospitals in the Kavirondo Reserves still remain the only existing accommodation for the treatment of lepers with the exception of a few who are accommodated at the Infectious Diseases Hospital at Nairobi and Mombasa.

The conditions at all these settlements are most unsatisfactory, but the difficulties in connection with the selection of new sites for the establishment of proper settlements have not yet been surmounted in either the Coastal or Highlands areas.

Treatment has been continued on the lines indicated in previous reports but owing to the fact that most cases present themselves for treatment in the more advanced stages of the disease, the results on the whole have been unsatisfactory.

A visit was paid to the country by the Secretary of the British Empire Leprosy Relief Association. The liaison effected is likely to be of use in making available the latest methods of treatment and in providing financial help in certain instances.

It is regretted that no progress has been made in the selection of a suitable site for a leper settlement at the Coast. For Kavirondo it has been proposed that a portion of the Maseno Estate reacquired during the year by Government shall be set aside as a leper settlement for the Province.

In connection with the establishment of leper settlements it has to be remembered that the native will have to be educated up to their use. At present the universal disinclination to leave his own particular district and an aversion to submit himself to a prolonged course of treatment will militate against any considerable use of settlements at their inception. The general attitude with regard to the disease will also require to be modified.

10.—SMALLPOX.

Twenty-two cases of smallpox were reported during the year as compared with 4 cases in 1926, the disease being confined to the Nairobi and Fort Hall areas.

In Nairobi the first case, in an African, occurred in August. The source of infection was traced to an Indian who had arrived in Mombasa from Bombay and had proceeded to Nairobi, where he was found to be suffering from smallpox. Another African case occurred early in September.

The usual measures in connection with the isolation of cases, disinfection of quarters and the vaccination and supervision of contacts were carried out.

Unfortunately several immediate contacts escaped from quarantine and could not be traced. It appears probable that these contacts were responsible for the outbreak in the Fort Hall District.

Towards the end of October four cases were reported, two from the Nairobi District and two from the Kiambu District. Precautions were immediately adopted and no further cases occurred until November when three more cases were reported in the town. This outbreak was promptly dealt with and the Nairobi area remained free from the disease for the remainder of the year.

In the Fort Hall District 12 cases occurred during September and October. The cases were isolated in a temporary hospital and a vigorous vaccination campaign was instituted. These measures proved successful and no further cases were recorded.

Vaccination.

The routine vaccination of prisoners, police recruits, labour recruits and immigrants was carried out as usual throughout the year.

The mobile vaccination team continued the vaccination of the Akamba tribe, 43,499 persons being vaccinated during the first five months of the year.

Unfortunately, owing to the pressure of other work, it was necessary, about the middle of the year, to use the personnel of the team for other purposes and the vaccination campaign in the native reserves was temporarily suspended. Arrangements have now been completed for the formation of another team which is to proceed to the Kavirondo Reserve early in 1928.

The total number of vaccinations performed during 1927 was 142,790. Satisfactory results continue to be obtained from the lymph prepared at the Laboratory in Nairobi.

11.—PNEUMONIA.

As in past years pneumonia has again caused more deaths than any other single disease. In Nairobi alone 240 deaths or 37.4 per cent. of the total deaths were recorded as being due to this cause. In the native reserves no reliable information is available as regards the incidence of the disease but in the urban areas it is responsible for an enormous amount of morbidity and mortality. As a killing disease amongst the native population pneumonia is perhaps the most important met with in the Colony.

The comparative figures for all hospitals during the past five years are as follows :—

Year.	*Cases.*	*Deaths.*	*Death rate per 100 Cases.*
1923	1,095	262	23.9
1924	1,036	178	17.1
1925	975	185	18.9
1926	1,265	255	20.2
1927	1,301	279	21.4

It will be noted that there is a slight increase in the total number of cases treated in hospitals as compared with the previous year and also an increase in the case mortality.

12.—TUBERCULOSIS.

During the year 634 cases of tuberculosis were treated at hospitals and dispensaries and 112 deaths from the disease were recorded.

The figures for the last five years are as follows :—

Year.	*Cases.*	*Deaths.*
1923	380	68
1924	528	72
1925	435	84
1926	453	56
1927	634	112

The above figures only refer to cases met with in Government hospitals and dispensaries and give no reliable indication of the incidence of the disease throughout the Colony. Recent investigations in several native reserves suggest that the incidence of the disease is considerable and there can be no doubt that tuberculosis is becoming a formidable menace to the health of the community.

Conditions under which the African lives in both townships and in the reserves are almost ideal for the spread of the disease and its increasing prevalence is a matter for grave concern.

Existing hospital accommodation is insufficient and unsuitable for the treatment of tuberculous patients and the provision of better facilities is becoming increasingly urgent.

Whilst all forms of tuberculosis are seen pulmonary tuberculosis is the the most common form of the disease.

From the evidence available from veterinary sources any by the inspection of meat the incidence of the disease in cattle might also appear to be increasing.

13.—CEREBRO-SPINAL FEVER.

Forty-one cases with 18 deaths were reported from seven stations during the year as compared with 37 cases and 22 deaths in 1926. The disease did not appear in epidemic form, all the cases being sporadic.

14.—ANTHRAX.

Nine stations reported a total of 51 cases with 7 deaths as against 45 cases in the preceding year.

15.—INFLUENZA.

A total of 4,141 cases with 8 deaths were reported during the year.

16.—THE ENTERIC GROUP.

The total for this group of diseases treated in Government hospitals in 1927 was 230 as compared with 56 in the preceding year. In addition to this total, a number of cases was notified and treated by private practitioners. The European population provided 11 cases and the non-European 219. Of the 230 cases, 34 ended fatally.

There would appear to have been a marked increase in the prevalence of enteric fever during the year. The returns show that the large majority of the cases, 221, were reported from Kisumu, Mombasa, Nairobi and Voi. An outbreak of over 40 cases occurred in a large sisal plantation where grossly insanitary conditions prevailed.

The Laboratory figures for positive agglutination tests show :—

B. typhosus	...	...	95
B. para-typhosus A		...	11
B. para-typhosus B		...	42

a large relative increase in para-typhosus B.

17.—TYPHUS.

No cases of this disease were treated at Government hospitals during 1927. Three cases were notified to the Medical Officer of Health, Nairobi. The cases were mild in type and all ended in recovery.

18.—DYSENTERY.

A total of 1,021 cases with 63 deaths was reported from Government hospitals as compared with 995 cases and 65 deaths during the preceding year.

Two hundred and three cases were returned from the districts as being amoebic in origin. The Laboratory figures showed six infections with the entamœba.

19.—UNDULANT FEVER.

Eighteen cases of undulant fever with 2 deaths were reported as coming under observation at various hospitals, as compared with only 3 cases in 1926.

The Laboratory figures for positive agglutination tests for single cultures showed :—

M. melitensis	...	...	7
M. paramelitensis		...	1
B. abortus	...	...	1

10.—DIPHTHERIA.

Seven cases of diphtheria came under observation in 1927 in Government hospitals as compared with 5 cases in 1926. In addition two cases were notified to the Medical Officer of Health, Nairobi, by private practitioners.

Although the disease now appears to have become endemic, the costly methods of control required in Europe and America do not appear to be called for at present in Kenya.

21.—WHOOPING COUGH.

Sixty-seven cases with 1 death were reported from Government hospitals during the year. A number of additional cases which came to the notice of private practitioners were notified to medical officers of health.

22.—ENCEPHALITIS LETHARGICA.

Two cases were reported as being treated at the European Hospital, Nairobi. One death occurred.

23.—HELMINTHIASIS.

Anchylostomiasis.

Infestation by hookworm is met with in practically every district but it is at the Coast that the effects of the parasite are most evident. The posting of a medical officer to the Digo District in 1926 was soon followed by reports indicating that the disease was a very serious factor in the economics of the reserve and responsible in large part for the poor physical condition of the people. Similar reports were received from the Malindi District. After consideration of the position it was decided to attempt a wholesale anti-anchylostomiasis campaign coupled with the institution of a system of pit latrines. The campaign divided itself into four distinct phases :—

(*a*) A rapid medical survey of which the findings are indicated under the section " Public Health."

(*b*) A propaganda campaign in which the nature of the disease, well recognised by the natives themselves, was explained, demonstrations, microscopic and others, of the worms and eggs given and the method of spread explained.

(*c*) The installation of a system of house pit latrines.

(*d*) The administration to the population of a mixture of carbon tetrachloride and oil of chenopodium.

In spite of the very great difficulties most encouraging results have been achieved. The people willingly accepted the idea of treatment and the necessity for a latrine system. At the close of the year the treatment campaign commenced and was inaugurated in a location where a latrine system had been brought into being and where over 6,000 people had provided themselves with these facilities. The actual digging of the latrines has been no mean task for a population provided in the main with primitive tools only and in many cases in a low physical state as the result of infestation. Difficulties in connection with the nature of the soil and the provision of suitable timber for covering in of the pit were often considerable. It is on record that one man, unfortunately situated as regards the possibilities of digging a pit, moved his house to a more suitable spot.

After the difficulties in connection with the installation of the latrine system had been surmounted there remained the organisation of mass treatment, no mean task in itself among a scattered and uncivilized community.

The type of latrine which is being constructed is a pit of at least twelve feet in depth covered over with logs and with a suitable rain-proof shelter. Communal pits have not been installed, the rule being that each household has to provide its own convenience. Assistance has been afforded by a squad of sanitary assistants specially trained in the construction of latrines of the nature specified. The squad goes ahead of the medical officers and instructs and assists the inhabitants of the villages in the construction of their pits. Assistance has also been provided in some cases by the loan of tools. The Local Native Council voted a sum of money for the purchase of tools, while others were borrowed from various departments.

The question as to a suitable latrine top occasioned considerable thought. It was recognised from the outset that a plain earth surface would render the latrines places where anchylostomiasis was contracted rather than factors in the elimination of the disease. In some places flat stones are obtainable and can be utilized as effective covers. In others a mixture of crushed coral and red earth will, if properly beaten down, produce an impervious surface. The Local Native Council also considered the manufacture and sale at a low price of portable cement concrete tops.

It has been emphasized all through that treatment would only be given after sanitation had been completed. This in itself has no doubt helped but the fact that it has been shown to be possible to persuade a reserve population to construct a system of pit latrines is an encouraging indication of what can be effected. It is also true that at the Coast there has been contact for centuries with Arab civilization and that therefore the pit latrine may be a tradition while as far as is known the superstitions of the people are not directly antagonistic to ideas of sewage disposal.

The procedure followed in the Digo District has also been adopted in the Malindi District where similarly encouraging results have been attained.

General.

The question of helminthiasis generally has received considerable attention during the year.

The investigations at the Laboratory which were mentioned in the 1926 Report were continued. The results when completed are likely to be published in England but enough had been performed by the end of the year to show that the effects of tænia infestation on growing boys is a serious factor in connection with growth and nutrition.

The actual part played by helminthic infestation as affecting nutrition has occasioned considerable speculation in connection with the experiment in nutrition conducted by the Civil Research Committee and the Empire Marketing Board. It appears that definite research on the point will require to be effected to round off whatever results may be obtained.

Further figures are to hand showing the degree of helminthic infestation generally. In the Malindi District 2,243 persons were examined and 2,104 were found to be positive. At the Native Hospital Hospital, Nairobi, 69.5 per cent. of 1,500 patients showed infestation. In the Teita Reserve 3,655 cases of helminthiasis, 47 per cent. of the total cases, were treated.

The type of parasite seems to vary in the different districts. At the Coast anchylostomiasis is the predominant factor. In the Teita Reserve ascaris appears more common than the other helminths. At the Reformatory tænia is the chief factor.

Schistosomiasis has been found to be a common infestation on the Coast while its presence is being more frequently met with in the other districts of the Colony than had been suspected.

Population.

The non-native population of the Colony was determined by census in 1926, the African population being estimated at the same time.

Population of Kenya in 1926.

Europeans	12,529
Asians (including Arabs)	26,759
Arabs	10,557
Africans	2,513,330 (estimated).

As no statistics are available by means of which the population of the Colony can be estimated with even approximate accuracy at the end of 1927, no useful purpose would be served in attempting to give figures.

There has probably been an appreciable increase in the population of all races due to an excess of births over deaths and in the case of Europeans to immigration also. Extended measures for the compulsory registration of births and deaths have been under consideration by Government, but were not introduced during the year. The necessity for the institution of effective registration in the larger townships in particular has been referred to on many previous occasions and until the necessary measures are adopted the compilation of vital statistics of any real value is quite impossible. Under these circumstances it is extremely difficult to gauge the success or otherwise of measures directed towards the improvement of the health of the community.

The vital statistics for the larger townships which are given below offer some indication of the health and mortality of the urban community, but the figures must be accepted with reserve, and no comparison can be made between rural and urban conditions.

NAIROBI.

Health and Mortality—Vital Statistics.

A.—Population.

For the reasons stated above, no estimate of the population of the town for 1927 has been made, and all rates for the year are calculated on the figures obtained by Census in 1926, which are as follows :—

Population of Nairobi Municipal Area, 1926.

Race.	*Males.*	*Females.*	*Total.*
Europeans ...	1,450 ...	1,215 ...	2,665
Indians	5,247 ...	2,494 ...	7,741
Arabs	60 ...	16 ...	76
Others	940 ...	442 ...	1,382*
			11,864
Africans (estimated) ...	— ...	— ...	21,000
		Total all races ...	32,864

* Of this number, 1,100 are estimated to be Goans.

The population in the last Census year, 1921, was 23,428.

B.—Births.

130 births among Europeans were recorded during the year, as compared with 119 in 1926, 108 in 1925, 95 in 1924, 106 in 1923, 128 in 1922, and 142 in 1921.

C.—Marriages

92 European marriages were registered.

D.—Deaths.

The total number of deaths from all causes reported as occurring in the town during the year is 748, as compared with 745 in 1926, 390 in 1925, 530 in 1924, 575 in 1923, 504 in 1922 and 570 in 1921.

Assuming the total population of Nairobi Township to be 32,864, the crude death-rate is 22.76 per thousand living.

So far as can be ascertained, the number of deaths in Nairobi and elsewhere of persons normally resident in the town was 652, which yields a recorded death-rate for all races of 19.84 per 1,000 living, as compared with 20.57 in 1926 and 12.8 in 1925.

Of the 652 deaths, 470 were males and 180 females.

37 occurred among Europeans, equivalent to a rate of 13.8 per thousand Europeans.

260 occurred among Asians, equivalent to a rate of 29.2 per thousand Asians.

346 occurred among Africans, equivalent to a rate of 16.5 per thousand Africans.

9 occurred among Other Races, equivalent to a rate of 31.9 per thousand Other Races.

The death rate for Other Races is based on such small numbers that it is not comparable with the other three.

A corrected death-rate cannot be calculated owing to the absence of information as to sex and age distribution.

E.—Infant Mortality.

No infant mortality rate can be obtained as the number of births is unknown.

The number of deaths which occurred in infants under one year of age is 123 or 18.65 per cent. of the total deaths reported.

Deaths under one year in comparison to total Deaths.

Race.	*Under one year.*	*All ages.*	*Percentage.*
European	5 ...	37 ...	13.5
Asian	98 ...	260 ...	37.7
African	20 ...	346 ...	5.8

Cause of Infant Deaths.

Pneumonia and Broncho-pneumonia	59
Prematurity	8
Congenital Defects	5
Asphyxia Neonatorum	4
Marasmus	19
Malaria	5
Heart Failure	3
Intestinal Causes	8
Other Causes	12
Total ...	123

Pneumonia and broncho-pneumonia account for almost half of the infant deaths, indicating the serious nature of these diseases in Nairobi.

The low percentage of infant deaths among Africans tends to corroborate a suspicion that very few Africans report infant deaths, the bodies being buried without the formality of a Police permit.

F.—General Mortality.

Pneumonia, always the chief cause of death in Nairobi, as elsewhere, has this year achieved a record. 240 deaths are recorded as due to this disease, or 37.4 per cent. of the total deaths. The figures for previous years are as follows :—

1922	...	170 or 31.5 per cent.
1923	...	164 or 28.5 per cent.
1924	...	141 or 26.0 per cent.
1925	...	121 or 31.0 per cent.
1926	...	171 or 26.0 per cent.

The death-rate from this cause in 1927 is about 7 per thousand living, as compared with 5.2 per thousand living in 1926.

Malaria caused 37 deaths, as compared with 130 in 1926 and 19 in 1925.

Plague accounted for 53 deaths, as compared with 32 in 1926 and 4 in 1925.

Tuberculosis was given as the cause of death in 21 cases, the figures for 1926 and 1925 being 17 and 14 respectively.

Diseases of the circulatory, respiratory (other than pneumonia), digestive and nervous systems produced 33, 45, 26 and 11 deaths respectively. The cause of 43 deaths was unspecified, these being deaths among natives who had not been seen by a medical practitioner prior to death and upon whom no post-mortem examination was made.

G.—Notifiable Infectious Diseases.

During 1927, the total number of cases of infectious disease occurring in the Township and reported to the Medical Officer of Health was 466, as compared with 321 in 1926. The increase was largely due to an epidemic of measles, which accounted for 203 of the notifications. Plague also showed an increase from 43 in 1926 to 70 in 1927.

	Cases Notified.		Number of Deaths.		Death Rate per 1,000 Population.
	1926	1927	1926	1927	1927
Anthrax	3	5	—	2	·06
Cerebro-Spinal Fever	7	16	5	10	·3
Diphtheria	5	4	3	2	·06
Erysipelas	1	—	—	—	—
Leprosy	14	6	1	3	·09
Undulant Fever	3	5	—	1	·03
Measles	101	203	2	—	—
Plague	43	70	32	53	1·5
Puerperal Fever	—	3	—	4	·12
Relapsing Fever	27	9	2	—	—
Smallpox	1	6	—	1	·03
Trypanosomiasis	1	—	1	—	—
Tuberculosis	47	44	17	21	·6
Typhoid and Paratyphoid Fever	28	29	4	4	·12
Typhus Fever	2	3	—	—	—
Whooping Cough	1	24	—	—	—
Yaws	26	39	—	—	—

MOMBASA.

Health and Mortality—Vital Statistics.

A.—Population.

As no estimate of the population of the town in 1927 can be made, all rates for the year are calculated on the figures obtained by Census in 1926, which are as follows :—

POPULATION OF MOMBASA, 1926.

Race.	Males.	Females.	Children.	Total.
Europeans	413	211	52	676
Indians	4,575	2,947	1,401	8,923
Goans	674	293	186	1,153
Arabs	3,588	2,442	1,653	7,683
Africans	9,027	6,888	5,930	21,845
Others	98	81	41	220
Total	18,375	12,862	9,263	40,500

B.—Births.

22 births among Europeans were registered during the year, as compared with 16 in 1926, 15 in 1925, and 16 in 1924.

C.—Marriages.

63 European marriages were registered. Many marriages registered in Mombasa are contracts between people resident in the interior.

D.—Deaths.

The total number of deaths reported in the town during the year is 726, as compared with 776 in 1926, 795 in 1925, 563 in 1924, 678 in 1923, 680 in 1922, and 692 in 1921.

Of the 726 deaths, 449 were males and 277 females.

The deaths reported amongst races were divided as follows :—

Race.	Male.	Female.	Total.
Europeans	6	1	7
Indians and Goans	120	105	225
Arabs	64	58	122
Africans	259	113	372
Total	449	277	726

Assuming the total population of Mombasa Township to be 40,500, the crude death-rate is 17.9 per thousand living, as compared with 19.48 in 1926, 21.2 in 1925, and 13.40 in 1924.

The crude death-rate for various races is as follows per thousand living :—

Europeans	10.3
Asians	20.6
Arabs	16.0
Africans	17.5

E.—Infant Mortality.

No infant mortality rate can be calculated, but the total number of deaths in infants under one year of age is 139, or 19.1 per cent. of the total deaths reported.

The deaths were divided amongst the different races as follows :—

Europeans	2
Indians	86
Goans	4
Arabs	26
Africans	19
Other Races	2
Total	139

The surprisingly small number of African infant deaths probably indicates that many deaths which occur are not reported to the authorities.

The number of Indian infant deaths, on the other hand, is very high and is evidence of the insanitary conditions prevailing in the Old Town and the general ignorance of the population regarding child welfare.

Causes of Infant Deaths.

Asphyxia	1
Asphyxia Neonatorum	1
Bronchitis	6
Broncho-pneumonia	14
Cellulitis of Scrotum	1
Convulsions	14
Cirrhosis of Liver	2
Chicken-pox	1
Croup	1
Debility	4
Dentition	1
Enteritis	15
Inanition	28
Injury at Birth	1
Malaria	26
Marasmas	1
Pneumonia	11
Premature Birth	10
Peritonitis	1
Total	139

It will be noted that most of the deaths are due to causes generally associated with either unsatisfactory conditions or to lack of knowledge of the essentials of infant welfare.

F. General Mortality.—Malaria was the chief cause of death, 99 deaths being due to this disease during the year, as compared with 84 deaths in 1926. The apparent increase in mortality is difficult to understand as measures directed towards the suppression of mosquitoes have been markedly successful and there has been a marked diminution in the number of cases treated in the Native Hospital.

Pulmonary tuberculosis was responsible for 71 deaths and pneumonia for 94.

G. Notifiable Infectious Diseases.—159 cases of infectious disease were notified during the year as compared with 267 in 1926, and 382 in 1925.

Tuberculosis which still remains the most common notifiable disease was notified in only 58 cases, as compared with 83 in the previous year.

The number of notifications of typhoid fever was nearly double that of 1926.

Details of cases notified in Mombasa during the last three years are given below :—

	1925.	1926.	1927.
Cerebro Spinal Meningitis ...	3	1	1
Erysipelas	—	—	1
Leprosy	6	15	10
Measles	22	131	30
Plague	—	—	3
Puerperal Fever	6	1	2
Relapsing Fever	—	2	2
Small-pox	242	3	1
Tuberculosis	83	103	58
Typhoid Fever	14	8	46
Whooping Cough	3	1	3
Yaws	—	2	2

KISUMU.

Vital Statistics.

A.—Estimated Population :

	1925	1926	1927
Europeans	116	141	153
Asians	1,200	1,303	1,257
Africans	6,000	6,212	6,218
TOTAL ..	7,316	7,656	7,628

B.—Deaths :

	1925	1926	1927
Europeans	2	3	—
Asians	28	49	53
Africans	101	191	140
TOTAL ..	131	243	193

CRUDE DEATH-RATE PER 1,000 LIVING.

1925	17.9
1926	24.9
1927	26.5

CAUSES OF DEATH.

(*Special Death-Rates per* 1,000 *Living*).

	1926	1927
Respiratory Diseases	8.5	9.6
Tuberculosis	0.9	0.7
Malaria and Blackwater	3.8	3.3
Intestinal Diseases	3.4	3.4

Infantile Mortality.

As in 1926, an attempt was made to arrive at the infantile mortality rate among the various sections of the community by means of a house to house enquiry. The results are given in the following table :—

Section of the Population.	No. of Births.	No. of Deaths under 1 Year.	Infantile Mortality Rate per 1,000 Births.	
			1927	1926
General African Population, excluding Railway Employees	131	31	237	277
Africans employed by Kenya and Uganda Railway	91	17	188	200
General Indian Population, excluding Railway Employees	36	15	417	314
Indians employed by Kenya and Uganda Railway	28	2	71	206

The figures on which these rates are based are small and of doubtful accuracy, but they indicate a high incidence of infantile mortality. They also serve to illustrate the imperative necessity for the institution of registration of births and deaths. They may be an indication of the value of improving housing.

NAKURU.

A. Population.—The non-native census taken in 1926 gave the following figures for the population of Nakuru :—

	Male.	Female.	Total.
Europeans	108	79	187
Indians	384	136	520
Arabs	9	5	14
Others	80	29	109
			830
Africans (estimated) ..	..	..	2,200
Total all Races..	..	..	3,030

B. Births.—29 European births were registered during the year.

C. Marriages.—6 European marriages were registered.

D. Deaths.—The total number of deaths reported as occurring in the town was 170. Making, as far as possible, the necessary corrections for non-residents who died in the town and for residents of the town who died elsewhere the figure is 83 for all races.

Assuming the total population of Nakuru to be 3,030 the recorded death-rate for all races is 27.39 per 1,000 living, but in the absence of reliable statistics the figure must be accepted with reserve.

E. Infant Mortality.—Of the 83 deaths, 11 were infants under one year of age, being 13.25 per cent. of the total.

F. General Mortality.—Of the 170 deaths which occurred in Nakuru, 45 were due to plague the great majority of the cases coming from the district, and not from the township.

Pneumonia accounted for almost 13 per cent. of the total deaths, the majority being young adults.

14 of the deaths were attributed to dysentery, and 8 to malaria.

G. Notifiable Infectious Diseases.—During the year 125 cases of infectious disease were notified of which 102 occurred in the district, and 23 in the Township. By far the greater number of these were cases of Plague,

the disease being responsible for 83 cases in the district with 48 deaths, and 14 cases in the township with 12 deaths. Other infectious diseases notified included Anthrax 6 cases, Cerebro-Spinal fever 2 cases, Measles 12 cases, Tuberculosis 2 cases, Typhoid and paratyphoid fevers 7 cases.

ELDORET.

A. Population.—The estimated population of Eldoret and the adjoining townships of Kapsoya and Elgonview for 1927, is given as follows :—

	Males.	Females.	Children.	Total	
ELDORET:					
Europeans	124	87	85	296	
Asians	443	93	172	708	
Africans	..	..	..	500	
					1,504
ADJOINING TOWNSHIPS:					
Europeans	105	79	61	245	
Asians	3	..	..	3	
Africans	..	..	..	100	
					348
TOTAL ..	..	..	..	..	1,852

The population of the three Townships in 1926 is stated to have been 1,475.

B. Births.—11 European births were registered during the year.

C. Marriages.—15 European marriages were registered.

D. Deaths.—8 European and 30 Asian deaths were reported during the year, but no figures are available as regards African deaths. Owing to the inadequate information available it is impossible to calculate the death-rate of the community. Pneumonia and diseases of the digestive system were the chief causes of death. Of 5 deaths which occurred under one year of age, 2 were European, and 3 were Indian.

E. Notifiable Infectious Diseases.—During the year 12 cases of infectious disease were notified of which 4 occurred in the Township and 8 in the Uasin Gishu District. It is almost certain that more cases occurred which were not brought to the notice of any doctor, particularly in the outlying areas. The diseases notified were Anthrax 5 cases, Cerebro-Spinal fever 1 case, Malta fever 1 case, Measles 1 case, and Typhoid and Paratyphoid fevers 4 cases.

KITALE.

A.—Population.

The population of Kitale, as determined by Census in 1926, is given below :—

	Males	Females	Total
Europeans	82	53	135
Indians	115	19	134
Arabs	1	1	2
Others	28	8	36
TOTAL ..	..	..	307

B.—Births.

21 European births were registered during the year.

C.—Marriages.

6 European marriages were registered.

D.—Deaths.

7 European deaths were reported from the township and district, but no information is available as regards deaths among the other races.

E.—Notifiable Infectious Diseases.

No cases were notified during the year.

EUROPEAN OFFICIALS.

The figures relating to the health of European officials during 1927 are much more satisfactory than those on 1926 and 1925. It was pointed out in the 1926 Report that the increase of sickness among officials which occurred in that year might be a reflection of the malaria epidemic. The improvement during 1927 might equally be due to the comparative lack of malaria. It is regrettable that improvement cannot be attributed to improvement in the conditions under which officials are housed. The hope that the insanitary and comfortless houses which are too often met with in the Reserves might be replaced by expenditure from loan money has not yet been realised. No houses were completed during the year. It appears, however, that some progress may be made in 1928. In the meanwhile house shortage is a serious problem in such places as Mombasa and has a considerable relationship to the cost of living among both official and non-official circles.

The comparative figures relating to in-patients and out-patients are as follows :—

	In-patients.	*Out-patients.*
1925	875 ...	504
1926	1,199 ...	429
1927	1,079 ...	488

Deaths among European officials totalled 6, the same number as occurred in the two preceding years. The causes were :—

Broncho-pneumonia	1
Sub-tertian malaria	1
Pneumonia	1
Peritonitis	1
Myocarditis	1
Cholecystitis	1
	6

Nine invalidings only took place, a very great improvement on preceding years. The causes were :—

Cranial injury	1
Neurasthenia	1
Malaria	1
Cardiac dilatation	1
Debility	1
Rheumatism	1
Phlebitis	1
Cardiac disease	1
Varicocele	1
	9

The comparative table of invalidings for the past three years is :—

1925	13
1926	25
1927	9

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST EUROPEAN OFFICIALS IN THE COLONY AND PROTECTORATE OF KENYA.

	1925	1926	1927
Total Number of Officials Resident	1,433	1,683	1,753
Average Number Resident	1,001	1,195	1,240
Total Number on Sick List	875	1,199	1,079
Total Number of Days on Sick List	6,667	7,908	5,777
Average Daily Number on Sick List	18·26	21·66	15·83
Percentage of Sick to Average Number Resident	1·82	1·81	1·28
Average Number of Days on Sick List to each Patient	7·61	6·59	5·35
Average sick time to each Resident	6·66	6·61	4·66
Total Number Invalided	13	25	9
Percentage of Invaliding to Total Residents	·90	1·48	·51
Total Deaths	6	6	6
Percentage of Deaths to Total Residents	·34	·36	·34
Percentage of Deaths to Average Number Resident	·59	·50	·48
Number of Cases of Sickness contracted away from Residence	—	—	—

NON-EUROPEAN OFFICIALS.

As in the case of European officials, the figures for 1927 relating to the health of non-European officials show, as a whole, a great improvement over those of 1926. Similarly, the improvement may be put down to the diminished incidence of malaria, and not to better housing and living conditions.

The comparative table for in-patients and out-patients is as follows :—

	In-patients.	*Out-patients.*
1925	2,554 ...	1,178
1926	4,772 ...	932
1927	3,756 ...	645

Ten deaths occurred, a total greater than in either of the two preceding years. The causes were :—

Malaria	2
Broncho-pneumonia	5
Endocarditis	1
Blackwater	2
	10

Invalidings totalled 12, as against 17 in 1926 and 11 in 1925. The causes were :—

Neurasthenia	1
Locomotor ataxia	1
Malaria	1
Debility	2
Rheumatism	1
Diabetes	2
Senility	1
Tuberculosis	2
Asthma	1
	12

TABLE SHOWING THE SICK, INVALIDING AND DEATH RATES AMONGST NON-EUROPEAN OFFICIALS IN THE COLONY AND PROTECTORATE OF KENYA.

	1925	1926	1927
Total Number of Officials Resident	2,427	2,645	2,760
Average Number Resident..	1,820	2,135	2,249
Total Number on Sick List	3,655	4,772	3,756
Total Number of Days on Sick List	21,487	24,996	18,439
Average Number on Sick List	53·81	68·48	50·52
Percentage of Sick to Average Number Resident ..	3·23	3·20	2·25
Average Number of Days on Sick List to each Patient ..	5·90	5·24	4·91
Average sick time to each Resident	11·89	11·70	8·20
Total Number Invalided	11	17	12
Percentage of Invaliding to Total Besidents	·45	·64	·44
Total Deaths	8	7	10
Percentage of Deaths to Total Residents..	·32	·26	·36
Percentage of Deaths to Average Number Resident ..	·44	·32	·44
Number of Cases of Sickness contracted away from Residence	—	—	—

HYGIENE AND SANITATION.

SECTION I.

General Review.

Sanitary administration—the Local Government Commission—Nairobi Area Townplanning—Mombasa Townplanning and Road Schemes—Registration of Births and Deaths—Sanitary Staff in the Settled Areas—in the Native Reserves—the Outlook.

Sanitary Administration—The Local Government Commission.

During the year the Local Government Commission which was appointed in 1926 under the chairmanship of Mr. Justice Feetham, K.C., issued its report.

The report, reviewing as it does the whole field of public health and sanitation in the settled areas of the Colony at the present time and making recommendations as to sanitary adminstration in the future, is extremely interesting and of great value. As the subject has been dealt with at some length and in considerable detail by the Commission it is unnecessary to recapitulate its recommendations in this report. It should be stated, however, that the establishment of a co-ordinating authority, a recommendation which has already been given effect to by Government, and the creation of the necessary machinery to enable Local Authorities to function properly in the different areas will result in a marked improvement in sanitary administration throughout a considerable part of the Colony. Some time must elapse before a complete and satisfactory system of Local Government can be built up, but it is a matter for satisfaction that much preliminary work has been accomplished and that the necessary legislation is in course of preparation.

During the period under review some improvement in the sanitary administration of the larger townships can be recorded but in general the position remains as described in previous reports.

Nairobi Area Town Planning.

The Authority appointed in 1926, to prepare a Townplanning Scheme for Nairobi and its environs, submitted a scheme to Government early in the year, together with an explanatory memorandum. The Authority has considered the problem in its various aspects at some length and its recommendations have once more drawn attention to the necessity of dealing with conditions injurious to health in a number of areas and of making provision, both financial and otherwise, for the proper control of development in the future.

Of the major problems considered which have a direct bearing on public health, the Nairobi river swamp area is recognized as a menace and recommendations are made for the reclamation of the whole area. The advisability of scheduling certain localities in the commercial area as "insanitary areas" and treating them by improvement schemes on a large scale is admitted, though on grounds of economy this is not the actual procedure advocated.

Proposals for dealing with the malaria problem in general are made; a zoning scheme is produced in detail and hospital provision for Nairobi has also received consideration.

In preparing the scheme the Authority was without the services of an engineer or of staff experienced in the preparation of townplanning schemes and as a result several problems which should have received consideration in relation to each other have received little or no recognition. Drainage and Sewerage questions appear to have been almost entirely ignored and any Townplanning scheme which does not include provision for drains and sewers in relation to the general lay-out of the town can only be described as incomplete.

The scheme, by sections, is now being put into statutory form and the Municipality are being entrusted with its execution. Under the general supervision and control of the Townplanning Authority this work is now being proceeded with.

Mombasa Town Planning and Road Scheme.

Considerable progress was made during the year with the townplanning scheme for the undeveloped portion of Mombasa Island. The necessary survey work is gradually nearing completion and the plots and roads are being demarcated.

The new road scheme for the Old Town has also progressed. One road was almost completed at the close of the year, and land and buildings in the line of the other roads had been acquired.

Registration of Births and Deaths.

No general registration of births and deaths is yet compulsory in Kenya, but it is gratifying to report that the matter is now under consideration by Government and the necessary legislation is in course of preparation. Until an efficient system of registration is introduced the compilation of vital statistics is quite impossible and the information obtained from the figures at present available is often entirely misleading.

Sanitary Staff in the Settled Areas.

The sanitary staff available for duty in the settled areas cannot yet be considered adequate, but during the year it was possible to post some extra staff to the smaller townships with a consequent extension of activities in these areas.

The increased staff posted to Mombasa and Nairobi in 1926 was maintained throughout 1927 and a whole-time medical officer of health and one sanitary inspector were maintained at Kisumu.

The posting of a sanitary inspector to Nakuru in 1926 was followed by the posting of a sanitary inspector to Eldoret during the period under review, a whole-time medical officer of health at the same time being appointed for both areas. A sanitary inspector was also attached to the Senior Medical Officer, Labour, for inspection duties in connection with sanitation on farms and estates.

In the two larger townships the staff available enabled fairly efficient sanitary control to be maintained but with the rapid development that is taking place the necessity for additional staff is becoming increasingly urgent, more particularly in the suburban areas adjoining Nairobi.

The opening of health offices with the necessary staff at Nakuru and Eldoret has resulted in a marked improvement of sanitary conditions at both places and has once more emphasized the desirability of instituting and maintaining some form of sanitary control in all other townships.

Sanitary conditions in the rural districts of the settled areas can only be described as far from satisfactory and little improvement can be expected until additional staff is available.

Sanitary Staff in the Native Reserves.

The provision of European sanitary staff for the native reserves has been under consideration for some years and it is a matter for satisfaction to be able to state that a beginning has been made in regard to sanitary administration in these areas.

During the year a sanitation officer, after making a general tour of inspection through several native reserves, was eventually posted to the Digo district. The assistance which was afforded to the district medical officer in the organization of an anti-helminthic campaign, an account of which will be found under the heading "Helminthiasis," was of enormous value. The campaign itself has demonstrated immense possibilities in regard to the improvement of sanitation and health in the native reserves.

Although no previous posting to a native reserve of an officer of the sanitation section of the Department had been possible, it must not be imagined that no public health work had previously been undertaken. The work of visiting dispensaries and treating individuals which is being performed by medical officers has a very definite public health value from the fact that a large number of the diseases met with are of a communicable nature and treatment renders the sufferer non-infective. The value of the work is increased if opportunity is taken to impart simple instruction as to the nature of the diseases prevalent locally, a course that has been adopted. It is obvious that at the inception a sanitation officer will require, if he is to obtain any influence among the natives, to perform work on the lines hitherto carried out by medical officers. The distinction in reserves between the functions of officers of the sanitation and medical divisions will for a time be a very fine one. Where, as in the past, one medical officer has been in charge of a district he has had to act both as health officer and as medical and surgical specialist in his hospital. In the future the extra-hospital duties, *i.e.*, those more directly associated with work devoted to improvement of the public health, will be performed by officers specially appointed for the duty.

The posting of a sanitary inspector to the Fort Hall district must also be recorded, most of this officer's time being occupied by work in the native reserve, although he is also available for inspection duties in the small township and trading centres in the district. Towards the end of the year arrangements were completed in this area for the opening of a small training depot for the instruction of African sanitary assistants.

The effects of education, increasing development, the opening up of communications and the acquisition of wealth are daily becoming more marked in the native reserves and they are, to some extent, reflected in the desire for a general improvement in living conditions. European sanitary staff are urgently required for the direction and assistance of this movement and it is hoped that before long staff will be available for the institution of sanitary administration in several native reserves.

The Outlook.

The District Committees, which act in an advisory capacity to administrative officers, are without exception taking an increasing interest in public health affairs and when an efficient system of local government is instituted a marked improvement in the sanitary administration of the settled areas should take place.

In the native reserves the Local Native Councils, which have now been in existence for a few years, are already displaying a considerable interest in a number of public health problems and these bodies should have a considerable influence in the sanitary development of the reserves in the future.

Sanitary Conditions, Sanitary Administration and Housing and Town Planning in:—

(*a*) Native Reserves;
(*b*) The Settled Areas (Rural);
(*c*) The Settled Areas (Smaller Townships);
(*d*) The Larger Townships (Mombasa and Nairobi).

(*a*) *Native Reserves.*

No general improvement in the sanitary conditions of the native reserves can be recorded during the year, but the posting of sanitary staff to the Digo and Kikuyu Reserves has resulted in the nucleus of a Sanitary Administration being started in these areas. In the Digo Reserve latrines have been constructed in a number of villages in connection with the anchylostomiasis campaign and in the Kikuyu Reserve a commencement has been made with the training of African sanitary assistants. With the extra staff which will become available in 1928 it is hoped to commence operations in other reserves. Full use will be made of the machinery provided by the Local Native Councils and although progress must necessarily be slow much useful work will eventually be accomplished.

(*b*) *The Settled Areas (Rural).*

Although the inspection of African quarters on farms and estates has been continued as in past years, much propaganda work being carried out at the same time, sanitary conditions in the rural settled areas can only be described as far from satisfactory. Schemes for the improvement of sanitation in these areas are under consideration and it is hoped that more efficient sanitary administration will be possible in the future.

(*c*) *The Settled Areas (smaller townships).*

The maintenance of health staff at several of the more important smaller townships has resulted in a marked improvement in sanitation at all these places. The assistance received from administrative officers and their advisory committees has played no small part in achieving this result. Many essential services are still required in all these townships for which financial provision has yet to be made in most cases. Investigations are, however, being carried out and the institution of a system of local government will enable the establishment of such services to receive proper consideration in relation to their cost.

The control of malaria and the provision of African housing are two matters of outstanding importance in all the smaller townships if development is to proceed on sound and economic lines. As regards the first, preliminary investigations have been undertaken by the entomologists of the department in a number of places, but organized anti-malaria campaigns as opposed to paliative measures have yet to be planned.

The attention of Government has also been drawn on more than one occasion to the necessity of providing housing accommodation for Africans in all urban areas. During the year the immediate removal of the present insanitary native village at Eldoret on account of townplanning requirements had to be considered. As already mentioned, a memorandum on the lay-out of a native location and a suggested scheme for the construction of a modern location on a new site at Eldoret, together with plans and estimates of cost, were prepared by the department and submitted to Government. The necessity for the consideration of similar schemes for other townships was also suggested.

From a sanitary and social survey which has been carried out in the native village at Eldoret it would appear that the natives are in a position to pay the economic rental required for the type of housing suggested and that a scheme of this nature can be established on a self-supporting basis.

(*d*) *The Larger Townships (Nairobi and Mombasa).*

The sanitary staff maintained at Nairobi and Mombasa in 1927 was similar to that maintained during the previous year. Whilst the personnel available proved sufficient for the sanitary administration of both these towns up to a point, inspection duties in connection with the building development which is taking place and work in connection with townplanning is occupying an increasing amount of the time of the staff. Rapid development is taking place on the outskirts of Nairobi and sanitary conditions in these suburban

areas are in urgent need of control. Extra staff will be required to cope with this situation. With the opening up of communications between Mombasa and the Mainland the control of development in this area will also have to be faced in the near future.

Routine work in connection with the inspection of premises, the abatement of nuisances, the inspection of meat and other foods, anti-infectious diseases measures and the scrutiny of building plans was carried out in both towns as in past years. As a result of this work sanitary conditions have been improved to some extent, but substantial improvements of a lasting nature are dependent on the demolition of slum property and clearance schemes on a large scale.

The progress made by the Nairobi and Mombasa Townplanning Authorities has already been referred to in this report and the gradual execution of their schemes will markedly improve amenities and sanitary conditions in both towns.

School Medical Inspection.

The school accommodation provided by Government up to the end of 1927 could only be described as far from satisfactory. The buildings in general were of an unsuitable and obsolete type, accommodation was limited and a considerable amount of overcrowding occurred. The sanitary arrangements in all cases left much to be desired.

It is a matter for satisfaction to be able to report that the building of new schools at several centres, for which provision was made out of Loan Funds, was commenced in 1927, and by the end of the year several buildings were nearing completion. Of modern type and providing accommodation for an increased number of scholars the buildings should prove satisfactory for the purpose for which they are designed.

No detailed inspection of private schools, of which there are now a number in the Colony, was possible during the year.

Medical Inspection of School Children.

The medical inspection of school children was undertaken at Nairobi and Mombasa, the work being carried out by members of the health office staffs. Although it was impossible to draw any general deductions from the information obtained, owing to the fact that this important branch of public health work is still in its infancy in Kenya, numerous defects were detected, many of which are of a preventable nature. Medical inspection in itself is of little value and until arrangements are made not only for an efficient system of inspection covering the whole Colony but also for the treatment of defects discovered, no marked improvement in the health of the school child can take place.

Provision for this purpose, including the appointment of a whole-time school medical officer and the necessary staff, is being made in 1928, when it is hoped that it will be possible to organize this work on a proper basis.

LABOUR CONDITIONS.

The year under review has been an uneventful one, showing no very remarkable occurrence, but rather a steady and consistent advance.

Public opinion as to the material conditions under which labour should be employed still progresses and becomes translated into action.

There is now, among many of the more far-seeing employers, a feeling that the time is ripe for more definite requirements on the part of Government as to the conditions under which labourers should live and be employed, and almost enough material has been collected to enable such requirements to be formulated. This, of course, will have to be done with caution. Conditions of industry in Kenya are so varied that it is impossible to lay down hard and fast rules for the whole body of employers, as can be done in countries where there are only one or two main industries.

Some industries, for instance the pastoral ones, require little or no regulation, while others will not move effectively in the absence of legalized compulsion.

Transport of Labour.

Owing to the increase in the number of third-class coaches on the Railway, the conditions under which native labourers travel has much improved. The Naive Affairs Department have erected during the year two additional rest camps, one at Yala and one at Kendu Bay, bringing the total of those up to five.

Housing.

Although housing as a rule is still primitive and unsatisfactory, yet improvement continues. Schemes for permanent housing have been drawn up in many cases and experiments in construction are being made. It is probable that a fair amount of building will be done in the coming year.

Food.

The tendency to improve labourers' rations and nearly all employers who have done this are satisfied with the resultant improvement in health, energy and content.

General Sanitation and Conservancy.

Little enthusiasm is shown as a rule towards this branch of hygiene. Definite anti-malaria and anti-plague measures are performed by the larger estates, but nearly everywhere a lack of common cleanliness is apparent. The disastrous effects of ordinary dirt and untidiness in encouraging the breeding of flies and the consequent spread of diseases like dysentery and the enteric group are still not sufficiently realized

Care of Sick and Injured.

The large estates are in many cases deficient in provision for their sick. In one district some leading employers tried hard to arrange for a hospital to care for their native labourers on a basis of mutual contribution and Government assistance. Unfortunately it was found that, in the absence of rating powers, adequate and continued support could not be relied on from voluntary contributions and the scheme fell through. It is hoped that the introduction of measures providing for local government will make such schemes more readily feasible.

Several instances have shown the necessity for legislative requirements if the sick and injured are to be properly cared for.

Labour Employed by Government Departments.

Government departments as a rule share in the general progress in the care of their labourers, but tend to follow the better private employer rather than to set an example. The Railway continues to look after the material wants of its native labourers in a satisfactory way.

Railway Construction.

The health of native labourers on railway construction was good. The average numbers of labourers employed and the death rates are as follows :—

	Number of Labourers	Death Rate per 1,000 per Annum
QUARTER ENDED 31ST MARCH :		
Uganda Extension	1,973	5·3
Thika–Nyeri	1,232	4·8
QUARTER ENDED 30TH JUNE :		
Uganda Extension	1,091	5·6
Thika –Nyeri	979	2·6
QUARTER ENDED 30TH SEPTEMBER :		
Uganda Extension	2,347	5·0
Thika–Nyeri	498	7·9
QUARTER ENDED 31ST DECEMBER :		
Uganda Extension	300	
Thika–Nyeri	—	—

Housing and Town Planning.

The activities of the Nairobi and Mombasa Townplanning Authorities are referred to in another section of this report and although some years must elapse before many of the insanitary features in both these towns disappear, a considerable amount of preliminary work has been completed.

Some townplanning progress can also be recorded in several of the smaller townships. Acting in conjunction with the local advisory committees, Government has approved of a general lay-out in a number of places, and a certain amount of sanitary control has been exercised in connection with the arrangement and design of buildings. The provision of housing for the Asian and African sections of the community is a problem that has yet to be faced in all townships.

In Nairobi the Municipal Corporation has provided some housing for the accommodation of Africans and the Kenya and Uganda Railway authorities are gradually completing housing schemes for all their employees in different parts of the Colony. The clearance of slum districts, which exist in all urban areas must, however, be continued, but until alternative accommodation is available the demolition of insanitary property merely increases congestion, with its attendant risks, in other parts of the town.

During the year a detailed sanitary and economic survey was carried out with regard to the housing of Africans in the so-called Native Location at Eldoret. The location in question is an exceedingly insanitary area, but the survey revealed that the rents paid were out of all proportion to the accommodation provided. A detailed plan for a new location to be built of permanent materials providing a reasonable modicum of social and sanitary amenity was prepared by the Department. Estimates for the construction of the same were obtained from the Public Works Department and proposals were submitted with regard to the methods by which the scheme might be financed. The proposal as submitted did not meet with the approval of Government and a modification is in course of preparation.

FOOD IN RELATION TO HEALTH AND DISEASE.

Routine inspection of milk, meat and other foodstuffs was carried out as usual during the year in Nairobi, Mombasa, Kisumu and Nakuru. The posting of a sanitary inspector to Eldoret early in the year enabled the control of foodstuffs to be undertaken in that town as well. It has also been possible to exercise some form of control in several of the smaller centres where staff is available. In the Native Reserves systematic inspection is not yet possible.

In order that food inspection may be carried out in a thorough and efficient manner all sanitary inspectors are now required to obtain a diploma in meat and food inspection.

The Public Health (Milk and Dairies) Regulations, which were applied to Nairobi in 1926, have gradually been enforced and their application has brought about a very definite improvement in the standard of cleanliness in the supply and distribution of milk. Unfortunately the native milk producer who brings his milk into the town for sale is to a large extent unaffected by the regulations, but the total prohibition of this form of trading would seriously affect the milk supply of the town. The question is, however, receiving consideration and attempts are being made to improve this source of supply.

The application of the regulations to other townships is also being considered.

Research.

In the 1926 report an outline was given of a programme of research into dietetics proposed to be undertaken under the auspices of the Civil Research Committee with funds supplied by the Empire Marketing Board. The workers seconded to the local service have been engaged throughout the year.

In addition to the enquiry into the etiology of ulcers and into the dietary habits of the Kikuyu and Masai tribes and their correlation with disease, certain metabolic experiments have been conducted at the Nairobi Gaol.

The results to date are of importance not only locally but also with regard to the general question of the mineral constituents of food. Papers have been prepared and are to be submitted to the authorities in England before publication can be effected.

Measures Taken to Spread the Knowledge of Hygiene and Sanitation.

Although a considerable amount of personal propaganda has been carried out by individual medical and sanitation officers in both townships and native reserves, systematic propaganda in the proper sense of the term has not yet progressed far. Considerable attention is, however, being given to the subject.

Towards the end of the year a circular was issued to the staff employed in reserves emphasizing the necessity of combining simple health instruction with curative measures. Considerable success has resulted where it has been possible to act on the lines indicated. It is doubtful whether the adoption of a latrine system in some of the Coast districts could have been attained unless the nature of anchylostomiasis and its method of spread had been explained to the people in an understandable and interesting manner.

Progress has been made in the compilation of a health primer or series of very simple lessons in hygiene suitable for adoption in bush schools where the standard of education is elementary in the extreme and where the teacher is comparatively little more advanced than the pupils. It is felt that something even more elementary than is provided by existing text books is required, something within the comprehension of the most backward native in the reserve and something which can be applied in the ordinary village. It would appear that a general improvement in the sanitary conditions of the reserves can better be attained by elementary education of the mass rather than by intensive instruction to a selected few, and further, that the education must reach the women as well as the men.

The Public Health Museum which was established some years ago has been maintained and the number and variety of the photographs and exhibits is gradually being increased. A Public Health Stall, which attracted much attention, was arranged in connection with the large European Agricultural Show which was held in Nairobi during the year.

The production of health pamphlets has also been continued and by the end of the year a pamphlet on the Prevention of Mosquitoes and Malaria was ready for publication.

Training of Sanitary Personnel.

The commencement of training native sanitary assistants, for which arrangements were completed by the end of the year, has already been mentioned in this report. The training of African sanitary inspectors is not yet being undertaken and for the reasons given in previous reports any attempt to institute such training at the present time would probably be premature and inadvisable. Attention is, however, being paid to the question of increasing the efficiency of the African staff attached to health offices and infectious diseases hospitals with a view to selecting suitable candidates for further training when opportunity offers.

RECOMMENDATIONS.

(a) Departmental.

The Colony of Kenya covers some 245,000 square miles and contains a population of about two-and-a-half millions. To provide medical relief for this population, to deal with the prevention of disease and to assist in the improvement of environmental conditions, there are in the neighbourhood of some sixty to seventy medical and sanitary officers and practitioners and about fifteen hundred hospital beds. Were the population concentrated in one great town the paucity of the medical and sanitary provision would stand out clearly. Comparison with the towns of England can easily be made. In the Africa

of to-day, rapidly developing and in many ways and places undergoing radical and fundamental changes, the needs of a community of some two-and-a-half million people neither too well fitted nor equipped to undertake these changes unassisted cannot be fully met by such provision.

During the year, at the request of Government, a memorandum was prepared by the Medical Department, in which comprehensive recommendations were submitted for meeting the health needs of the country more adequately than has yet been done. Since these recommendations were still under consideration by Government at the end of the year they need not be recapitulated here. Furthermore, it would not serve any useful purpose to emphasize any one of them since it is not by the appointment of an additional sanitation officer in one particular place or of an additional sanitary inspector in another that the present needs can be met. The needs are large and they should be met in a comprehensive manner.

Whether and when and to what extent it may be possible to make adequate provision is a matter which lies outside the purview of a single department.

(b) Extra-Departmental.

Many specific recommendations were made under this heading in the Annual Report for 1925 and were again referred to in the report for the succeeding year. No great progress with regard to any of these matters has been made during the year which has closed, but as most of them were the subject of consideration by the Local Government Commission and have been dealt with in the report of that Comission, the first object of their mention in the Annual Medical Reports has been achieved; they need not again be referred to until the local and central organisations which are being set up as a result of the Commission's report have had an opportunity of overtaking their responsibilities.

Others of the recommendations previously made are probably largely dependent on the findings of another commission which has not yet reported.

To one matter, however, special reference must be made, particularly at the present time, when new and responsible local authorities are about to be set up in the more settled parts of the Colony. That matter is the problem which is presented by the employment of natives outside of their reserves and the contact of the African with other races either on the farm or in the township. To this problem, or rather to the series of problems which arises, the closest and most sympathetic attention both of Government and of local authorities will require to be directed and no Medical and Sanitary report would at the present juncture be complete which contained no recommendation that local authorities should give to these problems the most careful and unremitting consideration. It is impossible to refer here to every aspect on which medical and sanitary control has a bearing. The repercussions between sanitary environment and social, educational and economic conditions are too varied and far-reaching to be summarised. By way of illustration, however, two instances, both referring to infectious diseases, may be mentioned—venereal disease and malaria—both of which show well that, in the matter of the public health of the Colony, the well-being of every section of the community is of paramount importance not only to the Colony as a whole but to each other section in particular. No section can be neglected either in a settled area or in a native reserve without some other section being prejudicially affected.

To make these points clear—the problem which is presented by the incidence of venereal disease in certain of the native reserves would appear to be becoming increasingly urgent and to deal with it in an appropriate fashion, well-organised teams of workers will be required. But, to confine action to treatment in the native reserves, no matter how thorough that treatment might be and no matter how extensively that treatment be provided, would largely be wasted effort unless at the same time local authorities and individual farmers and estate managers take adequate steps to ensure that the social conditions under which natives live in townships and on farms and estates are such as may make the institution of family life more possible for the native than is the case to-day. To achieve results in this matter will not be easy and the co-operation of most departments of Government will

be required. In connection with the floating agricultural population the difficulties will be very great. In the towns the first steps at least are very clear. Attention to housing and to the townplanning of native areas in and in the neighbourhood of townships is an urgent necessity.

As regards malaria the position is not dissimilar, though here the geographical conditions are in some cases reversed. In many native reserves malaria is endemic, the majority of the population are carriers and a long period must probably elapse before changing conditions reduce malaria to a negligible factor. In the settled areas on the other hand there are great tracts of land in which malaria had, until recently, been unknown. But, agricultural and domestic operations in these areas have produced conditions favourable for the propagation of malaria-carrying mosquitoes and the labourer has introduced malaria.

Unless adequate steps can be taken by the farmer and estate owner to combat the situation which is arising, his difficulties in the future, more particularly in the case of the smaller farmer, may be very great but should not be insuperable. It must, however, be realised that the question, though a sanitary one and of necessity involving, perhaps in most cases, special sanitary methods, is not one in which general sanitary methods can be neglected or special measures restricted in their application. The lesson of Southern Rhodesia must not be forgotton. Unless steps be laken to improve the general and special sanitary environment not only of the farmer himself but also of the labourer and to raise the latter far above the conditions of the native reserve, special anti-malaria measures are unlikely to be successful while many other important disabling diseases such as dysentery and typhoid and those which result from infection with intestinal worms would remain untouched. Nothing is so difficult to achieve as effective quarantine and no farmer can ensure freedom from infectious disease either for his family or himself if insanitary conditions prevail anywhere either on his own or his neighbour's farm.

The sanitation of the farm homestead and of the labourers' lines and the problem of raising the standard of civilization of the labourer is recommended to the attention of the whole farming community as an economic and social problem of the first importance.

PORT SANITATION.

(A) Granting of Pratique and Issue of Bills of Health.

The number of vessels which entered Kilindini or Mombasa harbours during the past five years is shown in the following table :—

	1923	1924	1925	1926	1927
Steamships	380	383	439	524	593
Dhows..	558	223	242	412	1,405
TOTAL ..	938	606	681	936	1,998

The nett tonage of steamers calling at Mombasa during the past five years has been as follows :—

1923	946,029
1924	1,037,631
1925	1,180,535
1926	1,444,320
1927	1,703,896

The steady increase in shipping at Mombasa reflects the rapid development which is taking place, not only at the Port, but throughout the rest of the Colony.

(B) Infectious Diseases on Vessels Arriving.

Plague.—The S.S. "Leconte de Lisle" arrived on the 6th March suspected of having the infection of plague on board. On the 18th of February, during the passage of the ship from Reunion to Mauritius, a native developed

plague and was landed at Tamatave. On the 23rd February a French steward on the ship developed plague and the vessel being still at Tamatave the case was landed there on the 24th. There was no history of rodent plague on the vessel but as a precautionary measure partial quarantine restrictions were imposed, contact with the shore being reduced to a minimum and the cargo being discharged under supervision.

Smallpox.—On the 29th of December the S.S. "British Sovereign" arrived at Mombasa from Abadan with a case of smallpox on board in the person of the Chief Engineer. The case was removed to hospital and all members of the crew vaccinated. Permission was granted to discharge cargo into lighters under strict supervision, cargo being handled on board ship by the crew. On the completion of the discharge of cargo the ship proceeded to Zanzibar for cleansing and disinfection.

The occurrence of plague in Mombasa in March necessitated the annotation of Bills of Health accordingly. Ships worked in voluntary quarantine and had as little contact as possible with the land.

(C) Examination of Food and Second-hand Clothing.

A considerable amount of food inspection is carried out at the Port of Mombasa and large numbers of cases of foodstuffs were examined and reported on at the request of the agents and importers.

During the year 21,641 articles of second-hand clothing were inspected under the Port Health Regulations as against 16,855 in 1926. Of the articles inspected 15,335 were passed and 6,314 prohibited. A large majority of the articles passed were accompanied by certificates of disinfection issued at the port of exportation.

The advisability of instituting more stringent measures to control the importation of second-hand clothing was considered by the Local District Committee of Mombasa during 1927. A resolution was forwarded to Government favouring the making of regulations prohibiting altogether the importation of second-hand clothing into the country, but so far no definite action has been taken on the lines recommended. The amount imported is still small and at the moment no great hardship would be suffered by firms dealing in such goods if total prohibition were enforced.

(D) Quarantine Station.

The question of the necessity for the provision of a quarantine station for Mombasa was again raised by the agents of the various shipping companies. A committee sat at various times during the year under the chairmanship of the Port Manager to discuss the whole question, but at the close of the year no definite recommendation had been made.

MATERNITY AND CHILD WELFARE.

Maternity and child welfare work has been continued at Nairobi and Mombasa during the year and a clinic has also been started at Kisumu. Trained European nursing sisters have been maintained in the towns for this purpose and the scope of the work is gradually being extended.

Attendances at the various clinics have been good and are increasing, and much useful work has been accomplished. Health visiting has also occupied a large amount of the time of the health sisters.

As indicating the progress of this important branch of public health work in Nairobi and Mombasa the following figures are of interest :—

NAIROBI.

Attendances of women and children at clinics ...	18,373
Outside visits made by health sisters	1,724
Vaccinations	8,504
Inoculations	9,992

MOMBASA.

Attendance of women and children at clinics ...	9,185
New cases	1,916
Outside visits made by health sisters	7,614
Number of bismuth infections given	370

Voluntary Effort.

The opening of Asian and African maternity homes and child welfare centres at Nairobi in 1927 by the Lady Grigg Child Welfare League and the maintenance of the African centre established by the League at Mombasa in 1926 marks the increasing interest which the public is beginning to take in public health work of this nature. This voluntary assistance has done much to augment the efforts of Government in the institution of materity and child welfare schemes.

Among the Asiatic population the replacement of the inefficient and insanitary *dai* by properly trained midwives is an urgent necessity. The training facilities provided at the Indian centre at Nairobi should be of the greatest value.

HOSPITALS, DISPENSARIES AND INSTITUTIONS.

GENERAL REMARKS.

A considerable drop occurred in the total of admissions at the varions Government hospitals throughout the country. It must be remembered, however, that the total of cases of malaria returned for 1927 is 19,000 less than in 1926. The drop in total hospital returns is, therefore, only what might be expected.

The comparative table is as follows :—

	In-Patients.			Deaths.		
	1925	1926	1927	1925	1926	1927
European Officials	875	1,199	1,079	6	6	4
Non-European Officials ..	3,655	4,772	3,756	8	8	9
General Enuropean Population..	855	914	1,023	13	18	22
General Native Population ..	21,112	22,856	20,904	898	1,064	1,237

The position with regard to the institution of a combined hospital at Nairobi was undefined during the greater part of the year. A large committee composed of all sections of the community was employed in considering and advising Government with regard to possible sites. A recommendation was put forward was not acceptable and towards the end of the year it was decided that the scheme could not be proceeded with.

No separate hospitals for Asiatics have been brought into being.

EUROPEAN HOSPITALS.

No constructional work of any magnitude has taken place with regard to existing hospitals and no new hospitals have been built during the year. The usual minor repairs have been effected. At Nairobi the construction of a window in a room previously used as a store has increased the accommodation by a single-bedded ward.

As a result of representations made to Government by the non-official medical practitioners and others, instructions were received that the private practitioners were to be allowed to attend to their own cases when admitted to hospital in Nairobi. The new arrangement has resulted in less difficulties than might have been expected. At the same time an advisory committee constituted of two private practitioners, the Deputy Director of Medical Services, and an officer of the Treasury, under the chairmanship of the Resident Commissioner, was formed. Several meetings took place.

Towards the end of the year the question was again raised as to whether the European Hospital at Nairobi in its present function of a nursing home admitting wealthy patients should continue under direct Government administration. The question was referred to a committee and the matter was still under consideration when the year closed.

The comparative table of admissions to European hospitals is :—

	1925	1926	1927
Total Number Treated ..	802	995	967
,, ,, Discharged	754	948	921
,, ,, of Deaths	17	23	25
,, ,, Remaining	31	24	21

Of the foregoing totals, 279 patients were officials, as against 284 in 1926.

Six officials and 19 non-officials died, as against 6 and 17 in the previous year.

The distribution of the various cases was as follows :—

	Officials.	*Non-Officials.*
Mombasa	60	... 127
Nairobi	166	... 506
Kisumu	53	... 55

Figues for the Eldoret and Nakuru hospitals are not included in the above, these being non-Government institutions. As time goes on it is likely that private nursing homes and hospitals will increase. One considerable institution was opened during the year by a private practitioner specialising in surgery.

NATIVE HOSPITALS AND DISPENSARIES.

The totals of cases treated at the various hospitals as presented below show a drop in numbers from the preceding year :—

	1925		1926		1927	
	In.	Out.	In.	Out.	In.	Out.
Admissions	21,112	162,781	22,856	184,406	20,904	173,304
Deaths	900	..	1,064	..	1,237	..
Death Rate per 1,000 of Admissions	42.6	..	46.5	..	59.7	..

No considerable decrease took place at any one hospital except Fort Hall, where the cessation of railway construction, coupled with uneasiness on the part of the natives at the collection of statistical data of physical development, and fanned by political agitation gave rise for a time to something like a boycott of medical facilities. To a very large extent, however, the total decrease is due to the non-recurrence of the 1926 malaria epidemic.

The overcrowding which was so marked a feature of 1926 has been little less acute in 1927. The accommodation which is provided is not sufficient for the calls made upon it. It is disappointing that little progress has been made with the provision of new hospitals or the replacement of unsatisfactory buildings by expenditure out of Loan Funds. At the close of the year a small hospital of 40 beds was approaching completion at Kitui and work was in hand on the replacement of the existing unsatisfactory Eldoret institution. There appears to be no immediate prospect of the erection in the Kikuyu Reserve of the two hospitals of which mention was made in the 1926 report and for which part of the expenditure has been provided from native funds. The building of the new Kakamega hospital is likely to be proceeded with in 1928. The site for the hospital for the Malindi district is still undecided pending the question of water supply and the Digo and Teita Districts remain without hospital facilities. In the latter case the matter is complicated by the question of site.

The settlement of the question of the combined hospital in Nairobi resulted in permission being obtained to erect at the Infectious Diseases Hospital the new wards of which the steel framework had been provided in 1925 and which were intended to replace ruinous structures long past repair. At the close of the year building was nearly completed. Satisfactory accommodation for 50 men and 30 women will be afforded in the new buildings.

At the Native Hospital, Nairobi, a steel-framed concrete building provided with its own sanitary annexes and divided into two, for males and females, was erected and provides accommodation for 32 Asiatic patients. A smaller ward of 16 beds, of corrugated iron and wood, was provided for natives and helped to relieve congestion. The erection of a ward for Asiatics made available for native maternity cases and clean female surgical cases the small ward used formerly for the accommodation of male Asiatic patients.

At the other large native hospitals no alteration or extension of any magnitude is to be recorded.

The native hospitals in or adjoining the settled areas are largely occupied by labourers who are sent by their employers for treatment and for whose accommodation a small charge, insufficient to cover the cost of maintenance, is levied. The system tends to maintain overcrowding. Sick labourers appear at the hospital from a distance, often without warning, and it is impossible to refuse admission. It is to be remembered that a system of estate hospitals is not maintained in Kenya as is the case in other countries. The matter requires consideration in the near future.

One attempt at least has been made on the part of a group of employers to provide hospital facilities for labour. After the matter had been discussed at some length and even after a promise of a Government subsidy and support had been obtained the matter was dropped in view of the possibility of the introduction of local government at an early date. The Local Government Commission's report recommended that powers should be given to local authorities to erect hospitals by means of rates.

One of the great problems of the native hospitals is in connection with the admission and treatment of cases of ulcers. At any one time a large proportion of the total cases under treatment consists of cases of ulcers. Arrangements have even had to be made to provide, at the infectious diseases hospitals, overflow accommodation for cases of this nature. It was shown on railway construction that the average stay in hospital of ulcer cases was 21.6 days as against under 7 days for others. On railway construction the labour is under some sort of supervision and the type of ulcer admitted to construction hospitals is likely to be of a less chronic nature than that coming from among unsupervised labour or from the reserves.

The system of posting to district hospitals boys trained to do simple laboratory work has been continued and extended. A very large saving in time and labour on the part of the medical staff results.

DISPENSARIES.

The number of sub-dispensaries which were in operation at the close of the year under supervision from the various medical centres was :—

Fort Hall	8
South Nyeri	4
Meru	3
Machakos	11
South Kavirondo	10
Central Kavirondo	10
North Kavirondo	10
Kisumu	3
Digo	4
Malindi	4
Masai Reserve	1

The South Nyeri sub-dispensaries follow from the posting of a medical officer to the district at the end of 1926. Dispensaries are likely to be opened in the Kitui and Teita districts during 1928.

The value of a sub-dispensary depends largely on three factors :—

(*a*) The type of disease met with in the district ;
(*b*) The type of native dresser in charge ;
(*c*) The amount of supervision that can be given.

In districts where communicable diseases such as yaws and syphilis are rife, in the suppression of which individual treatment such as can be administered by a partly-trained dresser is a factor, dispensaries as at present constituted have a definite importance, but their value is largely dependent on factors (*b*) and (*c*). Comment has been made in the past as to the low standard of education and responsibility which, under present circumstances, obtains among the dressers employed. The provision of training facilities should improve matters in time. Until a better type of subordinate is obtainable constant supervision is a necessity. It follows that sub-dispensaries must not be multiplied unduly and must not be situated at any considerable distance from the main centre. In the past the mistake has been made both of increasing unduly the number of dispensaries and of siting them at too great distances from the medical headquarters of the district. The result has been that medical officers have spent too large a proportion of their time on the road and expenditure, both of time and money, has occurred which has not been compensated by adequate results. It has been difficult at times in the face of representations by administrative officers and others to veto proposals for the extension of a system of dispensaries. The districts necessarily assigned to medical officers are far larger than can adequately be coped with. Care must be taken that effort is not wasted owing to its being applied to too wide an area.

In districts where two medical officers are available the value of sub-dispensaries can be enhanced by rendering them centres at which treatment on a scale higher than that afforded by the dresser in charge can be obtained, where the endemic diseases of the immediate neighbourhood are dealt with systematically and where a knowledge of simple hygiene can be disseminated. The foregoing will require that a stay, not of a few hours, but of weeks, must be made by the officer in charge. A circular on the point has been issued. If a woman medical officer or a nursing sister were available the effect of such a visit would be greatly enhanced; it would be possible to deal far more efficiently with the female and child population and the all-important task of imparting simple hygiene instruction to this section would be simplified. Another requirement would be the provision of buildings of a type considerably superior to those hitherto in use. Money has been provided in the past from Local Native Council funds and dispensaries of permanent construction have been erected in Kavirondo and the Masai Reserve. The system will be extended.

VENEREAL DISEASE CLINICS.

Treatment centres and clinics were maintained during the year at the central dispensary and at the Pumwani Native Village in Nairobi and arrangements were made for the treatment at these centres of the cases met with at the Maternity and Child Welfare and other centres throughout the town. The system is not yet on a satisfactory basis. Suitable buildings will require to be provided and extended facilities arranged.

Both at Mombasa and Kisumu a large part of the work of the Maternity and Child Welfare centres consists in the treatment of venereal disease among women and children.

MATHARI MENTAL HOSPITAL.

The position at the Mental Hospital remains unsatisfactory. The accommodation for natives is insufficient for requirements and is encroached upon by the necessity for providing for Asiatic patients and the sick. Urgent requirements are separate sick bay accommodation and Asiatic quarters. In addition suitable quarters for violent European female cases are at present lacking. The existing block for European females, though badly sited, is suitably designed for convalescent or quiet cases, but is quite unfitted for the accommodation of those whose mental condition renders them dangerous to themselves or to others.

Minor improvements and repairs were made to the buildings where possible.

During the year a plough was purchased and worked with oxen lent by the Transport Department. The result was a much better crop of maize than had been obtained previously by the preparation of the ground with hoes.

A workshop was built with hospital labour and material. The provision of tools provided a profitable interest for patients and a saving of expenditure by the manufacture of new furniture and the performance of minor repairs to the existing furniture and buildings.

General Statistics.

The following table shows the number of admissions and deaths during the last five years :—

	Admissions.					Deaths.				
	1923	1924	1925	1926	1927	1923	1924	1925	1926	1927
Males	69	70	86	89	80	10	15	30	32	26
Females	11	14	22	9	25	4	7	4	6	6
TOTAL ..	80	84	108	98	105	14	22	34	38	32

During the year the total number of patients under treatment was 204.

The various forms of insanity for which the patients were admitted were :—

Idiocy	2
Mania	52
Melancholia	1
Dementia	14
Delusional Insanity	5
G.P.I. and Others	30
Epilepsy	1
Total ...	105

Deaths.—Thirty-two deaths occurred, one being an Asiatic. No Europeans died. The percentage of deaths to the total treated was 15.87. The percentage of deaths to the total admitted was 30.47. Deaths were due to a variety of causes. No epidemic occurred.

Epilepsy	4
Heart Failure	6
Acute Nephritis	1
Senile Dementia	1
Syphilitic Thrombosis	1
General Debility	7
Cerebro-Spinal Meningitis	1
Amoebic Dysentery	2
Pellagra	1
Debility and Abscesses	1
Exhaustion following acute mania	1
Pulmonary Tuberculosis	1
Bacillary Dysentery	1
Dementia Praecox	1
Sub-tertian Malaria	2
Acute Mania	1

Discharges.—Fifty-seven patients were discharged during the year, forty-seven males and ten females.

Remaining.—One hundred and fourteen patients remained under treatment at the end of the year, as against 100 at the end of 1926.

EUROPEAN SECTION.

Sixteen cases were treated during the year, the same total as in 1926.

Admissions.—Ten cases were admitted during the year—all males.

Discharges.—Ten patients were discharged—male 8, female 2. One female patient was transferred to South Africa under the provisions of the Removal of Lunatics (European) Ordinance.

Deaths.—No deaths occurred.

Remaining.—Males 5, females 1. All the remaining cases are considered irrecoverable.

Recreation and Amusements.—Tennis is played if the condition of the patients allows. Indoor games are provided if required. There is a library to which additions are made from time to time from various sources.

ASIATIC SECTION.

Eight cases were treated during the year.

Admissions : Males 1, females 1.

Discharges : Males 1.

Remaining : Males 4, females 2.

Deaths : One.

All of the Asiatics are treated in the native block in the absence of separate accommodation.

NATIVE SECTION.

One hundred and eighty cases were treated during the year.

Admissions.—Males 69, females 24.

Discharges : Males 41, females 8. Two escapes occurred.

Deaths : Males 26, females 6.

Remaining : Males 67, females 33.

Amusements.—Football and native games are played. During the day patients are employed in the grounds woodcutting, cultivating or working in the gardens. Others do domestic work and some of the women employ themselves in basket-making.

The number of native criminal lunatics who are required to be accommodated at the hospital is a constant source of anxiety. Accommodation is shared with the ordinary cases. The safeguards against escape are not very efficient.

All native patients now receive anthelmintic treatment as a routine on admission.

One case of, probably, pellagra was admitted during the year and died. Such cases have not been recorded in the past.

GAOLS.

The figures of sickness and deaths for the Prisons throughout the country are more satisfactory than those of 1926, resulting probably from the lessened incidence of malaria.

The comparative table is as follows :—

Year.	Daily Average in Prison.	Admission to Hospital.	Daily Average on Sick List.	Percentage of Total Inmates.	Deaths.
1925	2,133	1,531	66.7	3.6	35
1926	2,242	2,296	79.8	3.6	76
1927	2,534	1,973	83.31	3.3	61

For the three principal prisons the figures are :—

	Nairobi.			Mombasa.			Kisumu.		
	1925	1926	1927	1925	1926	1927	1925	1926	1927
Average Daily Number in Gaol	650	777	847	264	242	317	358	295	349
Average Daily Number on Sick List	21.9	43.4	51.4	4.4	7.1	7.07	13.7	4.1	4.4
Percentage of Average Daily Sick to Average Number in Gaol	3.4	5.6	6.0	1.7	2.9	2.2	3.8	1.4	1.3
Total Deaths	11	38	27	4	4	4	10	7	8
Percentage of Deaths to Average Daily Number in Gaol	1.7	4.9	3.0	1.5	1.7	1.3	2.8	2.4	2.3

Deaths are classified as follows :—

	Nairobi Prison.	All Other Prisons.	Total.
Pneumonia ..	16	11	27
Dysentery	4	3	7
Other Diseases ..	7	20	27
TOTAL ..	27	34	61

Very little was effected in improving or extending the accommodation of any of the prisons. The general average of cubic and floor space allowed for prisoners is on the low side.

At Nairobi four blocks of temporary buildings, housing 160 prisoners were erected, resulting in considerable improvement in the conditions in the permanent cells.

RETURNS.

TABLE I.

ADMINISTRATIVE DIVISION.

Dr. J. L. Gilks	Director of Medical and Sanitary Services.
,, C. J. Wilson, M.C.	Deputy Director of Medical Service.
,, A. R. Paterson	Deputy Director of Sanitary Service.
,, A. D. J. B. Williams, O.B.E.	Senior Medical Officer.
,, F. J. C. Johnstone	Senior Sanitation Officer.
Mr. A. P. Ling	Chief Sanitary Inspector.
Capt. J. S. Robertson, M.B.E. ...	Medical Storekeeper.
Mr. H. Ogden	Office Superintendent.
G. E. Scattergood	Accountant.
T. R. Wilson, D.C.M.	Clerk.
J. L. Byrne, M.C.	,,
A. E. Webb	,,
(1) W. J. Ward	,,
R. L. O'Shea	,,
Miss M. E. Cameron	,,
,, M. A. Corfe	,,
Mrs. S. F. Stacey	,,
,, E. L. Feast	,,
Miss K. M. Trood	,,
,, T. M. Raper	,,
,, J. M. C. Millett	,,
,, K. L. Grant	,,
,, L. E. Shelton	,, (Learner grade).

Medical Division.

Dr.	N. P. Jewell, M.C.	Acting Resident Surgical Officer.
,,	T. H. Massey, M.C.	Senior Medical Officer.
,,	P. F. Nunan	,, ,, ,,
,,	V. M. Fisher	,, ,, ,,
,,	D. S. Scott	,, ,, ,,
,,	A. S. Mackie	Medical Officer.
,,	R. C. Briscoe	,, ,,
,,	C. V. Braimbridge	,, ,,
,,	R. A. W. Procter, M.C. ...	,, ,,
,,	R. J. Harley-Mason ...	,, ,,
,,	J. C. J. Callanan	,, ,,
,,	J. A. Ross	,, ,,
,,	P. Milne	,, ,,
,,	F. R. L. Miller	,, ,,
,,	E. W. C. Jobson	,, ,,
,,	C. R. Philip	,, ,,
,,	W. Wilkinson	,, ,,
,,	J. R. Davies	,, ,,
,,	A. G. Thomson	,, ,,
,,	C. P. Donnison	,, ,,
,,	J. A. Carman	,, ,,
,,	D. Bell	,, ,,
,,	J. H. H. Chataway	,, ,,
,,	H. A. Cole	,, ,,
,,	R. McFiggans	,, ,,
,,	P. Ross	,, ,,
,,	A. A. Battson	,, ,,
,,	N. McLean	,, ,,
,,	G. S. Hale	,, ,,
,,	A. T. Howell	,, ,,
,,	W. A. Bullen	,, ,,
,,	E. A. Trim	,, ,,
,,	F. L. Henderson	District Surgeon.
,,	J. Forbes	,, ,,
,,	C. J. Caddick	,, ,,
,,	S. J. Higgins	,, ,,
Mr.	H. L. Sargent	Assistant Surgeon.
,,	W. N. Sargent	,, ,,
,,	A. H. Ball	Dispenser.
,,	F. E. Welch	,,
,,	W. C. A. Skedge	,,
,,	A. Lowe	Wardmaster.
,,	T. Johnston	Nursing Orderly.
Miss	E. B. Wishart	Matron.
,,	I. Wilson	Nursing Sister.
Mrs.	S. J. Harrison	,, ,,
Miss	A. E. Davis	,, ,,
,,	M. I. Rhind	,, ,,
,,	R. Anderson	,, ,,
,,	D. M. Kenny	,, ,,
,,	F. M. Biggar	,, ,,
,,	H. Baumann	,, ,,
(2) ,,	M. Wallace	,, ,,
,,	A. K. Wilson	,, ,,
,,	R. F. Nimmo	,, ,,
,,	J. M. Pearson	,, ,,
(3) ,,	R. E. V. Nicholas ...	,, ,,
,,	A. Hagan	,, ,,
,,	C. E. Eason	,, ,,
,,	E. M. Birch	,, ,,
,,	E. T. Rogers	,, ,,
,,	M. E. Roche	,, ,,
,,	B. A. Robertson	Nursing Sister.
,,	I. M. Nicholson	,, ,,

	,, P. K. Dutton	... ...	,, ,,
	,, S. I. Beazley	... ...	,, ,,
	,, M. S. Neville	... ...	,, ,,
	,, M. McLeod	... ...	,, ,,
	,, C. S. Irvine-Robertson	...	,, ,,
	,, S. Johnson	... ...	,, ,,
	,, A. M. Pearton	... ...	,, ,,
	,, M. E. E. Clelland	...	,, ,,
	,, M. E. F. Chambers	...	,, ,,
	,, M. Armstrong	... ...	,, ,,
	Mr. W. G. Howe	... ...	Superintendent, Mathari Mental Hospital.
	Mrs. A. T. Howe	... ...	Matron, Mathari Mental Hospital.
(4)	,, G. Bowering	... ...	Assistant Matron, Mathari Mental Hospital.
	Mr. S. J. Bosch ...	... ...	Warder, Mathari Mental Hospital.
	Mrs. M. A. Bosch	... ...	Temporary Assistant Matron, Mathari Mental Hospital.
(5)	Mr. F. J. B. Jordan	... ...	Warder, Mathari Mental Hospital.
	,, F. M. Smurthwaite	...	,, ,, ,, ,,

Sanitation Division.

	Dr. H. S. de Boer, M.C.	...	Senior Sanitation Officer.
	,, R. N. Hunter	... ...	,, ,, ,,
	,, J. McP. Campbell	... ...	Sanitation Officer.
	,, P. C. C. Garnham	... ...	,, ,,
	,, K. A. T. Martin	... ...	,, ,,
(6)	,, J. R. Tibbles	... ...	,, ,,
	,, W. J. Hutchinson	... ...	,, ,,
	,, P. P. D. Connolly	... ...	,, ,,
	,, N. M. Maclennan	... ...	,, ,,
	Mr. J. P. Cook ...	... ...	Senior Sanitary Inspector.
	,, D. P. Broad ...	... ...	Sanitary Inspector.
	,, A. Bunker	... ...	,, ,,
	,, R. C. Mills ...	... ...	,, ,,
	,, H. E. Taylor	... ...	,, ,,
	,, F. Hewitt	... ...	,, ,,
	,, H. O. Salt	... ...	,, ,,
(7)	,, S. M. Jackson	... ...	,, ,,
	,, A. C. Arnold ...	... ...	,, ,,
	,, H. Martin	... ...	,, ,,
	,, R. W. Robinson	... ...	,, ,,
	,, H. H. Rodgers	... ...	,, ,,
	,, D. Mackintosh	... ...	,, ,,
	,, C. A. Lewis	... ...	,, ,,
	,, T. Hughes	... ...	,, ,,
	,, F. Franks	... ...	,, ,,
	,, R. D. Pearson	... ...	,, ,,
	,, F. C. Gaffney	... ...	,, ,,
	,, G. F. Newbury	... ...	,, ,,
	,, H. Jordan	... ...	,, ,,
	,, J. S. Stirton	... ...	,, ,,
	,, G. E. Shaw ...	... ...	Sanitary Overseer.
	,, J. Whyte	... ...	,, ,,
	,, H. Cock	... ...	,, ,,
	,, J. B. Clarke ...	... ...	,, ,,
	,, J. P. Kelly	... ...	,, ,,
	Miss R. K. Sharp	... ...	Nursing Sister.
	,, M. A. Perkin	... ...	,, ,,
	,, E. A. M. Riordan	...	,, ,,
(8)	,, M. E. Mindham	... ...	,, ,,
	,, M. G. Rice-Oxley	... ...	,, ,,
	Mr. W. J. Henfrey	... ...	Superintendent, Infectious Diseases Hospital.

LABORATORY DIVISION.

LABORATORY DIVISION.—(*Contd.*).

	Dr. W. H. Kauntze, M.B.E. ...	Deputy Director of Laboratory Services.
(9)	,, G. V. Allen	1st Assistant Bacteriologist.
	,, F. P. G. de Smidt	Assistant Bacteriologist.
	,, H. D. Tonking	,, ,,
	,, F. W. Vint	,, ,,
	Mr. M. H. Fox	Government Analyst.
	Dr. F. C. Kelly	Chemical Officer.
	,, D. Harvey	,, ,,
	Mr. C. B. Symes	Entomologist.
	,, G. H. E. Hopkins	,,
	,, F. A. Bailey	Laboratory Assistant.
	,, J. A. Bell	,, ,,
	,, J. S. McDonald	,, ,,
	,, H. M. Nefdt	,, ,,
	,, R. Brunsden	,, ,, (Learner grade).
	,, E. W. Grainger	,, ,, ,, ,,
	,, T. Jones	,, ,, ,, ,,
	Miss M. J. Bromhead	,, ,, ,, ,,

(1) Services terminated 1st March, 1927.
(2) Resigned 23rd January, 1927.
(3) Resigned 12th April, 1927.
(4) Resigned 31st January, 1927.
(5) Transferred to Prisons Department, 1st April, 1927.
(6) Appointment terminated 12th June, 1927.
(7) Agreement expired 4th October, 1927.
(8) Resigned 24th May, 1927.
(9) Transferred to F.M.S.

TABLE II.

FINANCIAL.

The sanctioned Medical Budget for the year 1927 was a total of £198,265, as compared with £179,964 for the preceding 12 months.

Of the 1927 grand total £180,227 was expended, leaving an unexpended sum of £18,038.

The headings under which the vote was arranged were as follows :—

MEDICAL DEPARTMENT.

ADMINISTRATIVE DIVISION.

	Estimates.	*Actual Expenditure.*
	£	£
Personal Emoluments	17,681 ...	15,864
MEDICAL DIVISION.		
Personal Emoluments	67,675 ...	64,692
SANITATION DIVISION.		
Personal Emoluments	24,092 ...	20,526
LABORATORY DIVISION.		
Personal Emoluments	11,347 ...	10,650
MEDICAL DEPARTMENT.		
Other Charges	77,470 ...	68,495

REVENUE.

The total amount of revenue collected as hospital fees, sales of medicines and surgical stores, bills of health and registration fees, was as follows :—

	£	£
Hospital fees, sales of medicines and registration fees	11,076	
Bills of Health	612	
Laboratory fees	930	
		12,618
Re-imbursement from Uganda Government on account of Zanzibar Sanitary Station ...	425	
Re-imbursement from Kenya and Uganda Railway on account of Medical and Dental Services	7,877	
		8,302
		£20,920

Last year the total revenue collected amounted to £18,181.

TABLE III.

RETURN OF STATISTICS OF POPULATION FOR THE YEAR 1927.

Colony and Protectorate of Kenya.	Europeans and Whites.	Africans and Others.	Asiatics.
Number of Inhabitants in 1927	*12,529	‡2,515,330	* 26,759
Number of Births Registered in 1927	Figures not available	Figures not available	Figures not available
Number of Deaths Registered in 1927			
Number of Immigrants during 1927..	5,388	2,030	10,096
Number of Emigrants during 1927..	Figures not available	Figures not available	Figures not available
Number of Inhabitants in 1927	12,529	2,515,330	26,759

* 1926 Census. ‡ Estimated.

TABLE IV.

METEOROLOGICAL RETURN FOR THE YEAR 1927.

Month.	Temperature.						Rainfall.		Winds.		Remarks
	Solar Maximum.	Maximum on Grass	Shade Maximum.	Range.	Max. and Min. mean combined.	Shade Minimum.	Amount in Inches.	Degree of Humidity.	General Direction.	Average Force.	
			°		°	°		%			
Nairobi :											
January			84	..	69.0	54	0.96	64	N.	3.1	
February			86	..	69.0	52	1.42	71	N.E.	2.3	
March			82	..	69.5	57	6.71	86	N.E.	1.7	
April			79	..	67.5	56	3.47	86	E.	1.5	
May			75	..	65.0	55	3.20	84	S.E.	1.4	
June			73	..	62.0	51	0.26	88	E.	1.4	
July			74	..	59.5	45	0.08	90	E.	1.6	
August			75	..	63.0	51	0.09	79	E.	1.5	
September			79	..	66.5	54	0.25	71	S.E.	1.6	
October			81	..	69.0	57	2.12	65	S.	1.9	
November			77	..	67.0	57	3.09	70	S.E.	1.9	
December			78	..	68.0	58	4.01	71	S.E.	2.2	
Year Average ..			78	..	66.0	54	25.66	77	..	1.8	
Mombasa :											
January			89	..	82.0	75	0.15	72	N.	2.9	
February			90	..	83.0	76	0.00	71	N.	2.4	
March			88	..	81.5	75	5.19	78	N.	1.9	
April			88	..	79.0	70	2.94	76	N.	3.0	
May			84	..	78.0	72	12.53	82	N.W.	2.8	
June			82	..	76.5	71	5.16	80	S.	3.0	
July			80	..	75.0	70	2.14	82	N.	2.9	
August			81	..	75.5	70	1.33	78	S.E.	2.8	
September			82	..	76.5	71	2.36	76	S.E.	2.7	
October			84	..	78.5	73	2.78	78	S.E.	2.7	
November			86	..	80.0	74	3.46	77	S.E.	2.2	
December			87	..	81.0	75	4.26	76	N.	1.4	
Year Average ..			85	..	79.0	73	42.30	78	..	2.5	
Fort Hall :											
January							0.89				
February							0.19				
March							9.28				
April							2.33				
May							3.07				
June			No Observations.				2.59	No Observations.			
July							0.16				
August							0.30				
September							0.13				
October							5.37				
November							3.68				
December							1.40				
Year Average ..							29.39				
Kisumu :											
January							0.20				
February							3.59				
March							5.38				
April							6.48				
May							4.33				
June							0.95				
July			No Observations.				0.82	No Observations.			
August							3.62				
September							1.87				
October							0.45				
November							1.70				
December							2.89				
Year ..							32.28				

TABLE SHOWING MEAN ANNUAL RAINFALL AT VARIOUS POINTS IN THE DIFFERENT AREAS FOR THE YEAR 1927.

Coast Area.

Station.	*1927.*
Malindi	52.34
Mombasa	42.30
Mazeras	24.66
Mackinnon Road	15.33
Voi	35.10
Taveta	18.69

Mountainous Area.

Station.	*1927.*
Masongaleni	23.81
Makindu	—
Kiu	17.86
Athi River	22.92
Nairobi (Department of Agriculture) ...	25.66
Kabete Reformatory (near Nairobi) ...	35.66
Naivasha	19.19
Nakuru	24.92
Molo	29.21
Eldama Ravine	30.53

Nyanza and Kenya Province.

Station.	*1927.*
Lumbwa	32.35
Muhoroni	47.20
Kisumu	32.28
Mumias (Kakamega)	62.72
Kericho	65.66
Nandi	45.99
Fort Hall	29.39
Nyeri	31.51
West Kenya	32.02

TABLE V.—EUROPEAN OFFICIALS.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
INFECTIVE DISEASES.					
Beri-beri					
Cerebro-spinal Fever					
Chicken-pox	..	2	..	2	..
Cholera					
Dengue	..	3	..	3	
Diphtheria					
Dysentery	1	18	..	19	
Endocarditis—Infective					
Enteric Fever	2	3	..	5	..
Erysipelas	..	2	..	2	
Gonorrhœa					
Influenza	..	214	..	214	3
Kala Azar					
Leprosy—					
(*a*) Nodular					
(*b*) Anæsthetic					
Malaria—					
(*a*) Sub-Tertian	..	67	1	67	1
(*b*) Benign Tertian	..	1	..	1	
(*c*) Quartan	..	1	..	1	
(*d*) Undifferentiated	7	159	..	166	
(*e*) Blackwater	..	4	..	4	
Measles	..	19	..	19	
Undulant Fever					
Plague					
Pneumonia	..	5	1	5	
Rabies					
Relapsing Fever					
Rheumatic Fever	..	1	..	1	
Septicæmia	..	5	..	5	
Trypanosomiasis (Sleeping Sickness)					
Smallpox					
Syphilis—					
(*a*) Primary					
(*b*) Secondary					
(*c*) Inherited					
Tetanus					
Tuberculosis					
Whooping Cough					
Yaws					
Yellow Fever					
Mumps	..	2	..	2	
Anthrax					
Typhus					
Other Infectious Diseases	..	2	..	2	
INTOXICATIONS.					
Alcoholism					
Morphinism					
Others					
GENERAL DISEASES.					
Anæmia	..	10	..	10	
Anæmia—Pernicious	..	1	..	1	
Diabetes					
Exophthalmic Goitre					
Gout					
Leucocythæmia					
Hodgkin's Disease					

TABLE V.—EUROPEAN OFFICIALS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
GENERAL DESEASES.—(*Contd.*).					
Myxœdema					
Purpura					
Rickets					
Scurvy					
Other General Diseases	..	17	..	17	1
LOCAL DISEASES.					
Diseases of the Nervous System:					
Sub-Section 1—					
Neuritis	..	4	..	4	
Meningitis					
Myelitis					
Hydrocephalus					
Encephalitis					
Abscess of Brain					
Congestion of Brain					
Other Diseases	1	5	..	6	
Sub-Section 2—					
Apoplexy					
Paralysis					
Chorea					
Epilepsy					
Neuralgia	..	17	..	17	
Hysteria					
Other Nervous Diseases	..	7	..	7	
MENTAL DISEASES.					
Sub-Section 3—					
Idiocy					
Mania					
Melancholia					
Dementia					
Delusional Insanity					
Other Mental Diseases					
DISEASES OF THE EYE.					
Conjunctivitis	..	2	..	2	
Keratitis					
Ulceration of Cornea	..	1	..	1	
Iritis	..	1	..	1	
Optic Neuritis					
Cataract					
Other Eye Diseases	..	7	..	7	
DISEASES OF EAR.					
Inflammation					
Other Diseases	..	8	..	8	1
DISEASES OF NOSE	..	8	..	8	
DISEASES OF THE CIRCULATORY SYSTEM.					
Pericarditis					
Endocarditis					
Valvular Mitral					
Valvular Aortic					
,, Tricuspid					
,, Pulmonary					
Arterial Sclerosis					
Aneurism					
Other Diseases	..	3	1	3	

TABLE V.—EUROPEAN OFFICIALS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE RESPIRATORY SYSTEM.					
Laryngitis	..	3	..	3	
Bronchitis	..	20	..	20	
Broncho-pneumonia	1	6	1	7	
Abscess of Lung					
Gangrene of Lung					
Emphysema					
Pleurisy	..	7	..	7	
Empyema					
Other Diseases	..	15	..	15	
DISEASES OF THE DIGESTIVE SYSTEM.					
Stomatitis					
Caries of Teeth	..	5	..	5	
Glossitis					
Sore Throat	..	8	..	8	
Inflammation of Tonsils	..	18	..	18	2
Gastritis	..	30	..	30	1
Ulceration of Stomach	1	..	..	1	
Hæmatemesis					
Dilation of Stomach					
Stricture of Stomach	..	1	..	1	
Dyspepsia	..	2	..	2	
Enteritis	..	2	..	2	
Appendicitis	..	27	..	27	2
Colitis	..	5	..	5	
Ulceration of Intestines					
Sprue					
Hernia	..	4	..	4	
Diarrhœa	..	23	..	23	
Constipation	..	2	..	2	
Colic	1	35	..	36	
Hæmorrhoids	..	6	..	6	
Pancreatitis					
Hepatitis (Acute)	..	3	..	3	
Abscess					
Cirrhosis					
Jaundice	..	1	..	1	
Peritonitis	..	1	1	1	
Ascites					
Other Diseases	..	21	1	21	
DISEASES OF THE LYMPHATIC SYSTEM.					
Splenitis					
Inflammation of Lymphatic Gland					
Suppuration of Lymphatic Gland	..	1	..	1	
Lymphangitis	..	1	..	1	
Elephantiasis					
Other Diseases	..	4	..	4	
DISEASES OF THE URINARY SYSTEM.					
Acute Nephritis					
Bright's Disease					
Pyelitis					
Calculus					
Renal Colic	..	2	..	2	
Cystitis	..	4	..	4	1
Vesical Calculus					
Suppression					
Hæmaturia	1	..	..	1	
Chyluria					
Other Diseases	..	1	..	1	

TABLE V.—EUROPEAN OFFICIALS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE GENERATIVE SYSTEM.					
Male Organs—					
Urethritis					
Gleet					
Stricture					
Prostatitis					
Soft Chancre					
Condyloma					
Inflammation of Scrotum					
Hydrocele					
Orchitis	..	2	..	2	
Epididymitis					
Abscess of Testicle					
Other Diseases	..	1	..	1	
Female Organs—					
Ovaritis					
Ovarian Cyst					
Displacement of Uterus					
Vaginitis					
Amenorrhœa					
Dysmenorrhœa	..	6	..	6	
Monorrhagia					
Luecorrhœa					
Abortion					
Delayed Labour					
Post-partem Hæmorrhage					
Retained Placenta					
Premature Birth					
Puerperal Septicæmia					
Mastitis	..	1	..	1	
Abscess of Breast	..	1	..	1	
Other Diseases					
DISEASES OF THE ORGANS OF LOCOMOTION.					
Osteitis	..	2	..	2	
Arthritis	..	1	..	1	
Spondylitis					
Bursitis					
Other Diseases	..	26	..	26	
DISEASES OF THE CONNECTIVE TISSUE.					
Cellulitis	1	11	..	12	
Abscess	..	15	..	15	
Elephantiasis					
Other Diseases	..	7	..	7	1
DISEASES OF THE SKIN.					
Urticaria	..	3	..	3	
Eczema	..	4	..	4	
Boil	1	3	..	4	
Carbuncle	..	1	..	1	
Herpes					
Psoriasis					
Oriental Sore					
Tinea	..	1	..	1	
Scabies					
Acne					
Prickly Heat					
Other Diseases	..	17	..	17	

TABLE V.—EUROPEAN OFFICIALS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
Injuries—					
General	..	8	..	8	
Local	2	105	..	107	1
*Surgical Operations	..	(64)	..		
Tumours	..	1	..	1	
Malformations					
Poisons	..	1	..	1	
Parasites—Animal	..	5	..	5	
Protozoa					
Trematoda (Flukes)					
Cestoda—					
Tænia Solium					
Tænia Saginata					
Nematoda—					
Ascaris					
Tricocephalus Dispar					
Trichina					
Dracunculus					
Filariasis					
Strongylus					
Ankylostomiasis					
Oxyuris					
Insecta—					
Myiasis					
Other Diseases					
TOTAL ..	19	1,079	6	1,098	14

* Recorded under respective Diseases.

TABLE V.—EUROPEAN GENERAL POPULATION.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
INFECTIVE DISEASES.					
Beri-beri					
Cerebro-spinal Fever					
Chicken-pox					
Cholera					
Dengue	..	1	..	1	
Diphtheria	..	1	..	1	1
Dysentery	..	23	..	23	1
Endocarditis—Infective					
Enteric Fever	1	8	..	9	
Erysipelas	..	2	..	2	
Gonorrhœa	..	1	..	1	1
Influenza	..	22	..	22	
Kala Azar					
Leprosy—					
(*a*) Nodular					
(*b*) Anæsthetic					
Malaria—					
(*a*) Sub-Tertian	2	100	..	102	1
(*b*) Benign Tertian	..	3	..	3	
(*c*) Quartan					
(*d*) Undifferentiated	..	122	1	122	1
(*e*) Blackwater	..	10	3	10	
Measles	..	5	..	5	
Undulant Fever					
Plague					
Pneumonia	..	12	3	12	2
Rabies					
Relapsing Fever					
Rheumatic Fever	..	1	..	1	
Septicæmia	..	1	1	1	
Trypanosomiasis (Sleeping Sickness)					
Smallpox	..	1	..	1	1
Syphilis—					
(*a*) Primary					
(*b*) Secondary					
(*c*) Inherited					
Tetanus					
Tuberculosis	..	4	1	4	
Whooping Cough					
Yaws					
Mumps	..	2	..	2	
Anthrax					
Typhus					
Other Infectious Diseases	2	5	..	7	
INTOXICATIONS.					
Alcoholism	..	1	..	1	
Morphinism					
Others	..	1	..	1	
GENERAL DISEASES.					
Anæmia	..	1	..	1	
Anæmia—Pernicious					
Diabetes					
Exophthalmic Goitre					
Gout	..	1	..	1	
Leucocythæmia					
Hodgkin's Disease					
Myxœdema					
Purpura					
Rickets					
Scurvy					
Other General Diseases	1	29	2	30	

TABLE V.—EUROPEAN GENERAL POPULATION.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
LOCAL DISEASES.					
Diseases of the Nervous System:					
Sub-Section 1—					
Neuritis	..	5	..	5	
Meningitis					
Myelitis					
Hydrocephalus					
Encephalitis					
Abscess of Brain					
Congestion of Brain					
Other Diseases	..	9	..	9	1
Sub-Section 2—					
Apoplexy					
Paralysis					
Chorea					
Epilepsy	..	4	..	4	
Neuralgia	..	1	..	1	
Hysteria					
Other Nervous Diseases	1	..	..	1	
MENTAL DISEASES.					
Sub-Section 3—					
Idiocy	..	2	..	2	
Mania	1	..	..	1	
Melancholia					
Dementia	3	2	..	5	
Delusional Insanity	..	1	..	1	
Other Mental Diseases	2	6	..	8	
DISEASES OF THE EYE.					
Conjunctivitis	..	6	..	6	
Keratitis					
Ulceration of Cornea					
Iritis	..	1	..	1	
Optic Neuritis					
Cataract					
Other Eye Diseases	..	2	..	2	
DISEASES OF EAR.					
Inflammation					
Other Diseases	..	7	..	7	1
DISEASES OF NOSE	..	2	..	2	
DISEASES OF THE CIRCULATORY SYSTEM.					
Pericarditis					
Endocarditis					
Valvular Mitral					
Valvular Aortic					
,, Tricuspid					
,, Pulmonary					
Arterial Sclerosis					
Aneurism					
Other Diseases	1	12	2	13	

TABLE V.—EUROPEAN GENERAL POPULATION—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE	Remaining in Hospital at end of 1926.	YEARLY TOTAL.. Admissions.	Deaths.	Total Cases Treated.	Remaining in Hospital at end of 1927.
DISEASES OF THE RESPIRATORY SYSTEM.					
Laryngitis	..	2	..	2	
Bronchitis	..	17	..	17	
Broncho-pneumonia	..	2	..	2	
Abscess of Lung	..	..	..	..	
Gangrene of Lung	..	..	..	..	
Emphysema	..	..	..	..	
Pleurisy	..	1	..	1	
Empyema	..	1	..	1	
Other Diseases	2	24	2	26	1
DISEASES OF THE DIGESTIVE SYSTEM.					
Stomatitis	..	1	..	1	
Caries of Teeth	..	2	..	2	
Glossitis	..	..	..	..	
Sore Throat	..	3	..	3	
Inflammation of Tonsils	..	34	..	34	1
Gastritis	..	18	..	18	
Ulceration of Stomach	..	..	..	..	
Hæmatemesis	..	..	..	..	
Dilation of Stomach	..	..	..	..	
Stricture of Stomach	..	..	..	..	
Dyspepsia	..	1	..	1	
Enteritis	..	5	..	5	
Appendicitis	..	65	2	65	
Colitis	1	13	..	14	
Ulceration of Intestines	..	..	..	..	
Sprue	..	..	..	..	
Hernia	..	7	..	7	
Diarrhœa	..	15	..	15	
Constipation	..	16	..	16	
Colic	..	7	..	7	
Hæmorrhoids	..	10	..	10	
Pancreatitis	..	..	..	..	
Hepatitis (Acute)	..	7	..	7	
Abscess	..	..	..	..	
Cirrhosis	..	..	..	..	
Jaundice	..	1	..	1	
Peritonitis	..	1	1	1	
Ascites	..	..	..	..	
Other Diseases	..	61	2	61	
DISEASES OF THE LYMPHATIC SYSTEM.					
Splenitis	..	..	..	..	
Infllammation of Lymphatic Gland	..	6	..	6	
Suppuration of Lymphatic Gland	..	1	..	1	
Lymphangitis	..	1	..	1	
Elephantiasis	..	..	..	..	
Other Diseases	..	5	..	5	
DISEASES OF THE URINARY SYSTEM					
Acute Nephritis	..	2	..	2	
Bright's Disease	..	..	..	..	
Pyelitis	..	2	..	2	
Calculus	..	..	..	..	
Renal Colic	..	..	..	..	
Cystitis	..	4	..	4	
Vesical Calculus	..	..	..	..	
Suppression	..	..	..	..	
Hæmaturia	..	..	..	..	
Chyluria	..	..	..	..	
Other Diseases	..	5	..	5	

TABLE V.—EUROPEAN GENERAL POPULATION.—*Contd.*.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE GENERATIVE SYSTEM.					
Male Organs—					
Urethritis					
Gleet					
Stricture					
Prostatitis					
Soft Chancre	..	1	..	1	
Condyloma					
Inflammation of Scrotum					
Hydrocele					
Orchitis	..	1	..	1	
Epididymitis	..	1	..	1	
Abscess of Testicle					
Other Diseases	..	4	..	4	1
Female Organs—					
Ovaritis	..	1	..	1	
Ovarian Cyst	..	3	..	3	
Displacement of Uterus					
Endometritis	..	14	..	14	
Vaginitis					
Amenorrhœa	..	1	..	1	
Dysmenorrhœa	..	1	..	1	
Monorrhagia	..	1	..	1	
Luecorrhœa					
Abortion	..	10	..	10	
Delayed Labour					
Post-partem Hæmorrhage					
Retained Placenta					
Premature Birth	..	1	..	1	
Puerperal Septicæmia					
Mastitis	..	2	..	2	
Abscess of Breast					
Other Diseases	..	25	1	25	
DISEASES OF THE ORGANS OF LOCOMOTION.					
Osteitis					
Arthritis	..	1	..	1	
Spondylitis					
Bursitis					
Other Diseases	..	18	..	18	2
DISEASES OF THE CONNECTIVE TISSUE.					
Cellulitis	..	5	..	5	
Abscess	..	21	..	21	
Elephantiasis					
Other Diseases	..	20	..	20	
DISEASES OF THE SKIN.					
Urticaria	..	2	..	2	
Eczema	..	1	..	1	
Boil	..	5	..	5	
Carbuncle	..	1	..	1	
Herpes					
Psoriasis					
Oriental Sore					
Tinea					
Scabies					
Acne					
Prickly Heat	..	2	..	2	
Other Diseases	..	19	..	19	2

TABLE V.—EUROPEAN GENERAL POPULATION.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
Injuries—					
General	1	3	..	4	
Local	7	72	..	79	1
*Surgical Operations	..	(237)			
Tumours	..	10	1	10	
Malformations	1	4	..	5	
Poisons	..	5	..	5	
Parasites—Animal	..	8	..	8	
Protozoa					
Trematoda (Flukes)					
Cestoda—					
Tænia Solium	..	2	..	2	
Tænia Saginata					
Nematoda—					
Ascaris					
Tricocephalus Dispar					
Trichina					
Dracunculus					
Filariasis					
Strongylus					
Ankylostomiasis	..	1	..	1	
Oxyuris					
Insecta—					
Myiasis					
Other Diseases					
Total ..	26	1,023	22	1,049	18

* Recorded under respective Diseases.

TABLE V.—NON-EUROPEAN OFFICIALS.

Return of Diseases and Deaths (In-patients) for the Year 1927.

Disease.	Remaining in Hospital at end of 1926.	Yearly Total.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
Infective Diseases.					
Beri-beri					
Cerebro-spinal Fever					
Chicken-pox	..	3	..	3	1
Cholera					
Dengue					
Diphtheria					
Dysentery	..	53	..	53	2
Endocarditis—Infective					
Enteric Fever	..	2	..	2	
Erysipelas					
Gonorrhœa	..	1	..	1	
Influenza	5	721	..	726	14
Kala Azar					
Leprosy—					
(*a*) Nodular					
(*b*) Anæsthetic					
Malaria—					
(*a*) Sub-Tertian	6	472	1	478	5
(*b*) Benign Tertian	..	1	..	1	
(*c*) Quartan	..	1	..	1	
(*d*) Undifferentiated	15	1,182	1	1,197	4
(*e*) Blackwater	..	8	2	8	
Measles	..	2	..	2	
Undulant Fever					
Plague					
Pneumonia	..	5	..	5	
Rabies					
Relapsing Fever	..	1	..	1	
Rheumatic Fever	..	3	..	3	
Septicæmia					
Trypanosomiasis (Sleeping Sickness)					
Smallpox					
Syphilis—					
(*a*) Primary					
(*b*) Secondary					
(*c*) Inherited					
Tetanus					
Tuberculosis	..	2	..	2	
Whooping Cough					
Yaws					
Yellow Fever					
Mumps					
Anthrax					
Typhus					
Other Infectious Diseases					
Intoxications.					
Alcoholism					
Morphinism					
Others					
General Diseases.					
Anæmia	..	1	..	1	
Anæmia—Pernicious					
Diabetes	..	1	..	1	
Exophthalmic Goitre					
Gout	..	6	..	6	
Leucocythæmia					
Hodgkin's Disease					
Myxœdema					
Purpura					
Rickets					
Scurvy					
Other General Diseases	..	6	..	6	

TABLE V.—NON-EUROPEAN OFFICIALS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
LOCAL DISEASES					
Diseases of the Nervous System:					
Sub-Section 1--					
Neuritis	..	2	..	2	
Meningitis					
Myelitis					
Hydrocephalus					
Encephalitis					
Abscess of Brain					
Congestion of Brain					
Other Diseases	..	23	..	23	
Sub-Section 2--					
Apoplexy					
Paralysis					
Chorea					
Epilepsy					
Neuralgia	..	61	..	61	
Hysteria					
Other Nervous Diseases	..	7	..	7	
MENTAL DISEASES.					
Sub-Section 3--					
Idiocy					
Mania					
Melancholia					
Dementia					
Delusional Insanity					
Other Mental Diseases	..	8	..	8	
DISEASES OF THE EYE.					
Conjunctivitis	..	39	..	39	
Keratitis	..	1	..	1	1
Ulceration of Cornea	..	5	..	5	
Iritis					
Optic Neuritis					
Cataract					
Other Eye Diseases	1	24	..	25	
DISEASES OF EAR.					
Inflammation	..	2	..	2	
Other Diseases	..	3	..	3	
DISEASES OF NOSE	..	11	..	11	
DISEASES OF THE CIRCULATORY SYSTEM.					
Pericarditis					
Endocarditis	..	1	1	1	
Valvular Mitral					
Valvular Aortic					
,, Tricuspid					
,, Pulmonary					
Arterial Sclerosis					
Aneurism					
Other Diseases	..	8	..	8	

TABLE V.—NON-EUROPEAN OFFICIALS—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DEASES.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE RESPIRATORY SYSTEM.					
Laryngitis					
Bronchitis	1	122	..	123	
Broncho-pneumonia	..	13	5	13	3
Abscess of Lung					
Gangrene of Lung					
Emphysema					
Pleurisy	..	5	..	5	1
Empyema					
Other Diseases	..	63	..	63	
DISEASES OF THE DIGESTIVE SYSTEM					
Stomatitis	..	3	..	3	
Caries of Teeth	..	21	..	21	
Glossitis					
Sore Throat	2	12	..	14	
Inflammation of Tonsils	..	26	..	26	1
Gastritis	..	34	..	34	
Ulceration of Stomach					
Hæmatemesis	..	1	..	1	
Dilation of Stomach					
Stricture of Stomach					
Dyspepsia	..	11	..	1	
Enteritis					
Appendicitis	..	6	..	6	
Colitis	..	22	..	22	
Ulceration of Intestines					
Sprue					
Hernia					
Diarrhœa	3	80	..	83	
Constipation	..	13	..	13	
Colic	..	87	..	87	1
Hæmorrhoids	4	19	..	23	1
Pancreatitis					
Hepatitis (Acute)	..	7	..	7	
Abscess	..	1	..	1	
Cirrhosis	..	1	..	1	
Jaundice					
Peritonitis					
Ascites					
Other Diseases	..	26	..	26	
DISEASES OF THE LYMPHATIC SYSTEM.					
Splenitis	..	1	..	1	
Infllammation of Lymphatic Gland	..	5	..	5	
Suppuration of Lymphatic Gland					
Lymphangitis					
Elephantiasis					
Other Diseases					
DISEASES OF THE URINARY SYSTEM.					
Acute Nephritis	..	1	..	1	1
Bright's Disease	..	2	..	2	
Pyelitis					
Calculus					
Renal Colic	..	2	..	2	
Cystitis	..	2		2	
Vesical Calculus					
Suppression	..	1	..	1	
Hæmaturia					
Chyluria					
Other Diseases	..	1	..	1	

TABLE V.—NON-EUROPEAN OFFICIALS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE GENERATIVE SYSTEM.					
Male Organs—					
Urethritis					
Gleet	..	1		1	
Stricture					
Prostatitis					
Soft Chancre					
Condyloma					
Inflammation of Scrotum					
Hydrocele	..	1	..	1	
Orchitis	..	4	..	4	
Epididymitis					
Abscess of Testicle					
Other Diseases					
Female Organs—					
Ovaritis					
Ovarian Cyst					
Displacement of Uterus					
Vaginitis					
Amenorrhœa					
Dysmenorrhœa					
Menorrhagia					
Luecorrhœa					
Abortion					
Delayed Labour					
Post-partem Hæmorrhage					
Retained Placenta					
Premature Birth					
Puerperal Septicæmia					
Mastitis					
Abscess of Breast					
Other Diseases					
DISEASES OF THE ORGANS OF LOCOMOTION.					
Osteitis	..	1	..	1	
Arthritis	..	5	..	5	
Spondylitis					
Bursitis					
Other Diseases	1	117	..	118	3
DISEASES OF THE CONNECTIVE TISSUE.					
Cellulitis	..	29	..	29	
Ascess	..	28	..	28	1
Elephantiasis					
Other Diseases	1	20	..	21	1
DISEASES OF THE SKIN.					
Urticaria	..	11	..	11	
Eczema	..	9	..	9	1
Boil	..	29	..	29	
Carbuncle	..	5	..	5	
Herpes	..	1	..	1	
Psoriasis					
Oriental Sore					
Tinea					
Scabies	..	22	..	22	
Acne					
Prickly Heat					
Other Diseases	..	15	..	15	

TABLE V.—NON-EUROPEAN OFFICIALS.—*Contd*.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Case Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
Injuries—					
General	..	1	..	1	2
Local	2	201	..	203	
*Surgical Operations	..	(2)			
Malformations					
Poisons					
Parasites—Animal					
Protozoa					
Trematoda (Flukes)					
Cestoda—					
Tænia Solium	..	1	..	1	
Tænia Saginata					
Nematoda—					
Ascaris	..	1	..	1	
Tricocephalus Dispar					
Trichina					
Dracunculus					
Filariasis					
Strongylus					
Ankylostomiasis					
Oxyuris					
Insecta—					
Myiasis					
Other Diseases					
Total	41	3,756	10	3,797	43

* Recorded under respective diseases.

NATIVE GENERAL POPULATION (INCLUDING ASIATICS).

Return of Diseases and Deaths (In-patients) for the Year 1927.

Disease.	Remaining in Hospital at end of 1926.	Yearly Total.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions	Deaths.		
Infective Diseases.					
Beri-beri	..	12	2	12	1
Cerebro-spinal Fever	..	41	18	41	1
Chicken-pox	17	920	..	937	32
Cholera					
Dengue	..	4	..	4	
Diphtheria	..	2	..	2	
Dysentery	16	434	63	450	10
Endocarditis—Infective					
Enteric Fever	7	216	34	223	27
Erysipelas	..	3	1	3	
Gonorrhœa	38	347	1	385	24
Influenza	6	465	8	471	12
Kala Azar	..	1	..	1	..
Leprosy—					
(*a*) Nodular	233	98	9	331	103
(*b*) Anæsthetic	..	22	2	22	16
Malaria—					
(*a*) Sub-Tertian	51	1,203	28	1,254	18
(*b*) Benign Tertian	3	41	5	44	1
(*c*) Quartan	..	45	..	45	4
(*d*) Undifferentiated	44	1,799	43	1,843	39
(*e*) Blackwater	..	9	3	9	
Measles	19	367	6	386	7
Undulant Fever	1	18	2	19	1
Plague	2	150	94	152	7
Pneumonia	28	1,125	276	1,153	50
Rabies					
Relapsing Fever	5	62	1	67	
Rheumatic Fever	1	6	..	7	
Septicæmia	1	14	13	15	
Trypanosomiasis (Sleeping Sickness)	1	9	1	10	3
Smallpox	..	10	2	10	
Syphilis—					
(*a*) Primary	43	601	..	644	34
(*b*) Secondary	14	451	10	465	35
(*c*) Inherited	..	20	8	20	1
Tetanus	..	8	4	8	
Tuberculosis	38	351	111	389	30
Whooping Cough	..	18	1	18	
Yaws	68	989	6	1,057	49
Yellow Fever					
Mumps	3	79	..	82	4
Anthrax	3	44	7	47	1
Typhus					
Other Infectious Diseases	2	66	5	68	3
Intoxications.					
Alcoholism	..	2	..	2	
Morphinism					
Others					
General Diseases.					
Anæmia	..	25	6	25	3
Anæmia—Pernicious	1	3	3	4	
Diabetes	..	4	1	4	
Exophthalmic Goitre					
Gout					
Leucocythæmia	..	2	..	2	
Hodgkin's Disease	..	3	1	3	
Myxœdema					
Purpura					
Rickets					
Scurvy	1	18	2	19	2
Other General Diseases	2	92	20	94	2

TABLE V.—NATIVE GENERAL POPULATION (INCLUDING ASIATICS).—*Contd.*

RETURN OF DISEASES AND DEATH (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admission.	Deaths.		
LOCAL DISEASES.					
Diseases of the Nervous System:					
Sub-Section 1—					
Neuritis	..	8	..	8	2
Meningitis	..	5	5	5	
Myelitis	1	..	..	1	
Hydrocephalus					
Encephalitis	..	1	..	1	
Abscess of Brain	..	2	2	2	
Congestion of Brain					
Other Diseases	1	17	4	18	1
Sub-Section 2—					
Apoplexy	..	1	1	1	
Paralysis	2	52	5	54	4
Chorea	..	2	..	2	
Epilepsy	1	17	1	18	3
Neuralgia	3	84	..	87	
Hysteria	..	16	..	16	
Other Nervous Diseases	4	32	1	36	1
MENTAL DISEASES.					
Sub-Section 3—					
Idiocy	..	1	..	1	
Mania	35	63	19	98	46
Melancholia	..	3	1	3	1
Dementia	19	14	8	33	19
Delusional Insanity	4	10	4	14	3
Other Mental Diseases	37	61	6	98	36
DISEASES OF THE EYE.					
Conjunctivitis	6	222	..	228	10
Keratitis	..	13	..	13	1
Ulceration of Cornea	2	29	..	31	1
Iritis	..	12	..	12	
Optic Neuritis					
Cataract	2	17	..	19	2
Other Eye Diseases	..	72	..	72	1
DISEASES OF EAR.					
Inflammation	..	23	..	23	
Other Diseases	..	59	..	59	
DISEASES OF NOSE.	..	9	..	9	
DISEASES OF THE CIRCULATORY SYSTEM.					
Pericarditis	..	5	3	5	
Endocarditis	1	3	4	4	
Valvular Mitral	..	27	7	27	
Valvular Aortic	..	10	4	10	1
,, Tricuspid					
,, Pulmonary					
Arterial Sclerosis					
Aneurism	..	2	1	2	
Other Diseases	2	34	5	36	

TABLE V.—NATIVE GENERAL POPULATION (INLCUDING ASIATICS).—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY Total.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE RESPIRATORY SYSTEM.					
Laryngitis		21	..	21	1
Bronchitis	..	576	3	585	23
Broncho-pneumonia	9	204	44	207	10
Abscess of Lung	3	3	1	3	
Gangrene of Lung	..	2	2	2	
Emphysema	..				
Pleurisy		44	2	45	1
Empyema	1	4	1	4	
Other Diseases	..	82	5	85	5
	3				
DISEASES OF THE DIGESTIVE SYSTEM.					
Stomatitis		18	..	19	
Caries of Teeth	1	9	..	9	
Glossitis	..				
Sore Throat		29	..	29	
Inflammation of Tonsils	..	64	..	64	3
Gastritis	..	18	1	18	1
Ulceration of Stomach	..	3	..	3	
Hæmatemesis	..				
Dilation of Stomach					
Stricture of Stomach					
Dyspepsia		29	..	30	
Enteritis	1	131	12	133	4
Appendicitis	2	12	..	13	
Colitis	1	27	2	28	
Ulceration of Intestines	1	1	1	1	
Sprue	..				
Hernia		83	4	84	3
Diarrhœa	1	221	12	225	7
Constipation	4	47	..	47	1
Colic	..	52	1	53	1
Hæmorrhoids	1	8	..	8	
Pancreatitis	..	4	1	4	
Hepatitis (Acute)	..	19	2	19	
Abscess	..	11	3	11	
Cirrhosis	..	30	15	31	
Jaundice	1	7	1	7	
Peritonitis	..	11	10	13	
Ascites	2	23	1	25	3
Other Diseases	2	84	12	88	2
	4				
DISEASES OF THE LYMPHATIC SYSTEM.					
Splenitis	2	47	2	49	2
Infllammation of Lymphatic Gland	5	100	..	105	3
Suppuration of Lymphatic Gland	1	26	..	27	3
Lymphangitis	..	4	..	4	
Elephantiasis	1	7	..	8	
Other Diseases	..	28	2	28	5
DISEASES OF THE URINARY SYSTEM.					
Acute Nephritis	3	26	12	29	
Bright's Disease	..	3	2	3	
Pyelitis	..	2	1	2	
Calculus	..	2	..	2	
Renal Colic					
Cystitis	..	11	1	11	1
Vesical Calculus	..	2	..	2	
Suppression	..	1	1	1	
Hæmaturia	..	6	1	6	1
Chyluria					
Other Diseases	1	20	3	21	2

TABLE V.—NATIVE GENERAL POPULATION (INCLUDING ASIATICS).—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
DISEASES OF THE GENERATIVE SYSTEM.					
Male Organs—					
Urethritis	..	3	..	3	
Gleet	..	4	..	4	
Stricture	1	15	1	16	
Prostatitis					
Soft Chancre	1	8	..	9	2
Condyloma	..	3	..	3	
Inflammation of Scrotum	..	2	..	2	
Hydrocele	4	78	..	82	1
Orchitis	1	46	..	47	
Epididymitis	..	5	..	5	1
Abscess of Testicle					
Other Diseases	2	62	..	64	3
Female Organs—					
Ovaritis					
Ovarian Cyst	1	5	2	6	
Displacement of Uterus					
Vaginitis	..	4	..	4	
Amenorrhœa					
Dysmenorrhœa	..	12	..	12	
Menorrhagia	..	3	..	3	
Luecorrhœa	..	14	..	14	
Abortion	..	10	..	10	1
Delayed Labour	..	37	8	37	1
Post-partem Hæmorrhage	..	1	..	1	
Retained Placenta	..	13	1	13	1
Premature Birth	..	6	3	6	
Puerperal Septicæmia	..	3	1	3	
Mastitis	..	7	..	7	
Abscess of Breast	..	2	..	2	
Other Diseases	1	69	6	69	3
DISEASES OF THE ORGANS OF LOCOMOTION.					
Osteitis	6	38	1	44	4
Arthritis	8	102	2	110	6
Spondylitis	..	1	1	1	
Bursitis	..	4	..	4	
Other Diseases	18	420	5	438	27
DISEASES OF THE CONNECTIVE TISSUE.					
Cellulitis	4	149	5	153	8
Abscess	20	374	10	394	32
Elephantiasis	5	41	2	46	3
Other Diseases	90	1,268	23	1,358	143
DISEASES OF THE SKIN.					
Urticaria	..	19	..	19	2
Eczema	..	27	..	27	2
Boil	..	35	1	35	1
Carbuncle	..	4	..	4	
Herpes	..	39	..	39	
Psoriasis					
Oriental Sore	1	..	..	1	
Tinea	..	4	..	4	
Scabies	10	116	..	126	7
Acne					
Prickly Heat	..	1	..	1	
Other Diseases	74	911	..	985	111

TABLE V.—NATIVE GENERAL POPULATION (INCLUDING ASIATICS.—*Contd.*

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR 1927.

DISEASE.	Remaining in Hospital at end of 1926.	YEARLY TOTAL.		Total Cases Treated.	Remaining in Hospital at end of 1927.
		Admissions.	Deaths.		
Injuries—					
General	..	34	7	34	2
Local	248	2,956	81	3,204	304
*Surgical Operations	..	(1,497)			
Tumours	9	147	9	156	2
Malformations	1	2	..	3	
Poisons	1	32	3	33	1
Parasites—Animal					
Protozoa					
Trematoda (Flukes)	2	68	3	70	1
Cestoda—					
Tænia Solium	2	52	..	54	3
Tænia Saginata	..	73	..	73	
Nematoda—					
Ascaris	3	104	..	107	4
Tricocephalus Dispar					
Trichina	..	1	..	1	
Dracunculus	..	3	..	3	
Filariasis	..	8	..	8	
Strongylus					
Ankylostomiasis	5	147	23	152	5
Oxyuris					
Insecta—					
Myiasis					
Other Diseases	2	25	..	27	3
Total	1,338	20,904	1,237	22,242	1,421

* Recorded under respective diseases.

TABLE VI.—ALL RACES.

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1927.

DISEASES.	European Officials.		European General Population.		Non-European Officials.		Native General Population (including Asiatics).	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
INFECTIVE DISEASES.								
Beri-beri	..	..	..	..	..	..	..	..
Cerebro-spinal Fever	..	..	..	..	..	..	..	..
Chicken-pox	..	..	..	..	..	..	104	11
Cholera	..	..	..	..	..	..	..	..
Dengue	3	..	1	..	1	..	6	2
Diphtheria	..	..	..	..	..	..	..	4
Dysentery	3	..	4	2	4	..	345	135
Endocarditis–Infective	..	..	..	..	..	..	..	..
Enteric Fever	..	..	..	..	..	..	..	1
Erysipelas	..	..	..	..	..	..	..	..
Gonorrhœa	..	..	..	..	1	..	1,035	22
Influenza	9	1	9	8	15	..	2,379	298
Kala Azar	..	..	..	..	..	..	..	..
Leprosy—								
(*a*) Nodular	..	..	..	..	..	..	11	2
(*b*) Anæsthetic	..	..	..	..	..	..	55	24
Malaria—								
(*a*) Sub-Tertian	31	1	20	17	11	..	758	253
(*b*) Benign-Tertian	..	..	1	..	..	..	38	10
(*c*) Quartan	..	..	..	..	..	..	11	12
(*d*) Undifferentiated	33	2	28	15	129	..	14,433	3,086
(*e*) Blackwater	..	..	2	1	..	..	..	1
Measles	..	..	..	..	..	..	90	27
Undulant Fever	..	..	..	..	..	..	..	..
Plague	..	..	..	..	..	..	..	..
Pneumonia	..	..	..	..	..	..	114	40
Rabies	..	..	..	..	..	..	..	..
Relapsing Fever	..	..	..	..	..	..	10	5
Rheumatic Fever	1	..	..	..	..	..	30	2
Septicæmia	..	..	..	..	..	..	..	..
Trypanosomiasis (Sleeping Sickness)	..	..	..	..	..	..	..	..
Smallpox	..	..	..	..	..	..	..	..
Syphilis—								
(*a*) Primary	1	..	..	..	..	..	690	307
(*b*) Secondary	..	..	2	..	..	..	1,567	1,513
(*c*) Inherited	..	..	..	..	..	..	269	220
Tetanus	..	..	..	..	..	..	..	1
Tuberculosis	..	..	..	..	..	..	181	96
Whooping Cough	..	..	..	..	..	..	26	23
Yaws	..	..	..	..	..	..	7,199	5,155
Yellow Fever	..	..	..	..	..	..	..	..
Mumps	..	..	..	..	..	..	14	8
Anthrax	..	..	..	..	..	..	5	2
Typhus	..	..	..	..	..	..	..	..
Other Infective Diseases	3	..	2	1	2	..	313	113
INTOXICATIONS.								
Alcoholism	..	..	..	..	..	..	1	..
Morphinism	..	..	..	..	..	..	..	..
Others	..	..	1	..	..	..	..	..
GENERAL DISEASES.								
Anæmia	8	2	4	6	4	..	390	129
Anæmia–Pernicious	..	..	..	..	..	..	10	..
Diabetes	..	..	..	..	..	..	6	..
Exophthalmic Goitre	..	..	..	..	..	..	..	1
Gout	..	..	..	1	..	..	1	..
Leucocythæmia	..	..	..	..	..	..	1	..
Hodgkin's Disease	..	..	..	..	..	..	..	..
Myxœdema	..	..	..	..	..	..	1	1
Purpura	..	..	..	..	..	..	..	..
Rickets	..	..	..	..	..	..	10	7
Scurvy	..	..	..	..	..	..	5	3
Other General Diseases	12	..	18	18	1	..	210	17

TABLE VI.—ALL RACES.—*Cont'd.*

RETURN OF DISEASES (OUT-PATIENTS) FOR THE YEAR 1927.

DISEASES.	European Officials.		European General Population.		Non-European Officials.		Native General Population (including Asiatics).	
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.
LOCAL DISEASES.								
Diseases of the Nervous System	16	2	9	6	34	..	2,819	620
Mental Diseases	..	..	3	..	..	..	4	5
Diseases of the—								
Eye	14	..	6	7	33	..	5,410	2,453
Ear	25	..	17	19	12	..	1,987	644
Nose	18	1	6	6	35	..	557	135
Circulatory System	1	..	3	1	2	..	82	35
Respiratory System	30	..	22	16	80	..	17,880	4,057
Digestive System	100	8	111	75	152	..	19,361	4,608
Lymphatic System	4	..	7	..	..	..	940	169
Urinary System	2	1	4	5	1	..	107	30
Generative System	2	1	12	33	1	..	484	562
Organs of Locomotion ..	18	..	12	9	38	..	6,817	1,503
Connective Tissue	25	2	20	10	13	..	12,485	1,870
Skin	48	..	60	19	30	..	7,154	1,474
INJURIES.								
General	1	..	1	..	..	..	269	80
Local	54	1	76	22	43	..	23,103	2,712
Surgical Operations*	..	..	..	..	(9)	..	(18)	..
Tumours	..	..	..	..	..	..	47	37
Malformations	..	..	..	..	..	..	5	1
Poisons	1	..	1	..	3	..	33	2
Parasites—Animal	3	..	2	3	..	..	7,031	3,883
TOTAL ..	466	22	464	300	645	..	136,893	36,411

* Recorded under respective Diseases.

TABLE VII.—EUROPEANS.

RETURN OF INFECTIVE DISEASES TREATED AT THE VARIOUS HOSPITALS AND DISPENSARIES IN THE COLONY AND PROTECTORATE OF KENYA DURING THE YEAR 1927.

		Eldoret.	Fort Hall.	Kakamega.	Kachelibа.	Kericho.	Kitui.	Kisii.	Kisumu.	Lamu.	Lodwar.	Machakos.	Malindi.	Mombasa.	Meru.	Mandera.	Nairobi.	Nakuru.	Nandi.	Narok.	Nyeri.	Teita.	Voi.	TOTAL.
Chicken-pox	Cases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	2
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dengue	Cases	..	..	..	..	..	3	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	5
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	Cases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery	Cases	6	..	..	..	..	..	..	4	..	..	2	..	11	1	..	19	..	..	..	4	1	2	50
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Enteric Fever	Cases	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	8	..	..	..	..	..	1	11
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	Cases	23	1	..	..	..	..	6	3	..	..	1	..	27	..	1	186	..	1	..	12	..	2	263
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Malaria	Cases	43	4	2	2	5	8	8	118	4	1	10	2	198	7	..	166	4	..	1	..	..	18	601
	Deaths	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Blackwater Fever	Cases	..	..	1	1	..	..	..	2	..	..	2	..	4	..	..	4	..	..	..	..	..	2	16
	Deaths	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	1	..	..	..	..	..	..	3
Pneumonia	Cases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	17	..	..	..	..	..	..	17
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	3
Relapsing Fever	Cases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Septicæmia	Cases	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..	..	..	..	2
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1
Small-pox	Cases	..	..	..	..	..	..	..	..	..	..	..		1	..	..	..	..	..	..	..	..	..	1
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Mumps	Cases	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	..	4
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Tuberculosis	Cases	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	4
	Deaths	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1

TABLE VII.—NATIVES (including ASIATICS).

RETURN OF INFECTIVE DISEASES TREATED AT THE VARIOUS HOSPITALS AND DISPENSARIES IN THE COLONY AND PROTECTORATE OF KENYA DURING THE YEAR 1927.

Diseases.		Eldoret.	Fort Hall.	Kakamega.	Kilindini.	Kitui.	Kisii.	Kisumu.	Kericho.	Lamu.	Lodwar.	Machakos.	Malindi.	Mandera.	Mombasa.	Moyale.	Meru.	Nairobi.	Nakuru.	Nandi.	Nyeri.	Narok.	Voi.	Kacheliba.	Teita.	Total.
Beri-beri	Cases	..	..	..	..	..	2	..	..	..	1	1	..	3	1	..	1	..	1	..	..	..	2	..	..	12
	Deaths	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2
Cerebro-spinal Fever	Cases	1	..	..	..	..	..	7	..	..	3	2	..	..	2	..	..	24	2	..	..	..	..	..	..	41
	Deaths	1	..	..	..	..	..	1	..	..	1	2	..	..	1	..	..	10	2	..	..	..	..	..	..	18
Chicken-pox	Cases	19	43	2	18	4	18	35	3	..	3	3	..	4	226	..	16	523	53	2	34	..	25	..	10	1,041
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dengue	Cases	..	..	..	..	13	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	13
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Diphtheria	Cases	..	4	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	6
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dysentery	Cases	41	5	..	29	62	162	11	4	79	..	16	5	5	104	65	15	136	77	11	20	1	110	..	13	971
	Deaths	..	..	..	..	2	1	2	..	2	..	..	1	..	4	1	2	16	14	..	..	..	18	..	..	63
Enteric Fever	Cases	1	2	..	..	..	5	44	..	..	..	1	..	..	71	..	..	68	..	..	..	..	27	..	..	219
	Deaths	..	..	..	..	..	..	4	..	..	..	..	..	..	10	..	..	17	..	..	..	..	3	..	..	34
Influenza	Cases	335	56	1	362	1	119	64	65	..	6	13	..	26	475	165	124	1,545	25	158	267	38	31	..	2	3,878
	Deaths	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	2	..	..	..	..	8
Leprosy	Cases	..	1	34	..	5	22	68	..	..	..	2	10	..	17	..	6	29	1	..	6	1	3	..	7	212
	Deaths	..	..	4	..	..	1	..	..	..	..	..	..	..	2	..	..	4	..	..	..	..	..	..	..	11
Malaria	Cases	520	1,099	129	1,537	388	540	3,104	30	1,635	162	572	1,455	113	2,904	1,773	631	3,506	492	357	308	14	1,154	173	889	23,485
	Deaths	3	11	1	..	1	..	7	..	1	1	..	..	..	16	..	3	20	8	..	..	..	6	..	..	78
Blackwater Fever	Cases	..	1	..	..	..	..	1	..	..	..	..	..	..	6	..	1	5	..	..	..	..	4	..	..	18
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	1	..	..	4
Measles	Cases	1	23	..	15	..	2	114	..	..	..	..	4	..	46	..	34	206	15	..	15	..	9	..	2	486
	Deaths	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	5	..	..	..	..	..	..	..	6
Undulant Fever	Cases	..	..	..	..	..	3	7	..	..	..	..	..	..	..	..	..	7	1	..	..	..	..	..	..	18
	Deaths	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	2
Plague	Cases	..	16	..	..	..	1	2	..	..	..	..	..	..	4	..	..	69	58	..	..	..	..	..	..	150
	Deaths	..	13	..	..	..	1	1	..	..	..	..	..	..	3	..	..	39	37	..	..	..	..	..	..	94
Pneumonia	Cases	55	62	5	7	8	28	138	7	24	9	21	2	2	99	7	14	608	74	19	45	5	41	4	..	1,284
	Deaths	9	16	1	..	1	2	22	..	2	..	4	..	..	30	1	3	148	19	..	5	..	12	1	..	276
Relapsing Fever	Cases	..	5	..	..	..	4	3	..	..	..	..	..	..	2	..	36	14	1	..	..	..	..	..	13	78
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1
Septicæmia	Cases	..	..	..	..	..	..	1	..	..	..	..	..	..	2	..	..	8	3	..	..	..	..	..	..	14
	Deaths	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	9	2	..	..	..	..	..	..	13
Trypanosomiasis	Cases	..	..	..	..	..	7	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9
	Deaths	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1
Small-pox	Cases	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	10	..	..	..	..	..	..	..	10
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2
Syphilis	Cases	119	12	15	17	2	309	1,347	13	93	1	4	5	13	84	1,772	..	108	570	109	14	7	20	1	1	4,636
	Deaths	..	..	..	..	..	..	2	..	2	1	..	..	..	1	..	..	4	4	3	..	..	1	1	..	18
Tetanus	Cases	..	1	..	..	..	..	1	..	1	..	..	..	..	3	..	1	2	..	..	..	..	..	..	..	9
	Deaths	..	1	..	..	..	..	1	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	5
Tuberculosis	Cases	3	98	2	1	10	39	14	1	118	..	9	25	7	67	3	19	73	5	10	9	3	13	..	81	630
	Deaths	2	21	1	..	2	4	3	..	2	..	4	..	..	31	..	4	24	2	1	2	1	6	..	..	110
Yaws	Cases	64	150	338	5	952	1,315	1,263	13	401	..	86	1,261	2	3,006	..	1,731	140	7	9	991	9	512	..	1,088	13,343
	Deaths	..	1	2	..	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	1	..	..	..	..	..	6
Mumps	Cases	..	1	..	2	..	..	1	..	..	..	7	..	..	5	8	1	73	1	..	1	..	1	..	..	101
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Anthrax	Cases	5	2	1	..	..	..	..	..	..	..	1	..	..	4	..	2	23	8	..	5	..	..	..	..	51
	Deaths	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	3	..	..	..	..	..	..	7

TABLE VIII.—STATISTICS REGARDING ENTERIC FEVER AMONG EUROPEAN RESIDENTS IN THE COLONY AND PROTECTORATE OF KENYA DURING 1927.

Total number admitted on account of Enteric.				Number admitted who had been previously inoculated against Enteric.		Number of cases who died.				Total number inoculated against Enteric Fever during the year.	
Officials.		Non-Officials.		Officials	Non-Officials	Officials	Non-Officials	Officials	Non-Officials	Officials	Non-Officials
Cases	Deaths	Cases	Deaths								
3	..	8	..	..	..	..	..	..	..	..	..

The occurrence of the cases was as follows :—

Kisumu ..	.. 2
Nairobi ..	.. 8
Voi ..	.. 1
TOTAL	..11

APPENDIX A.

REPORT ON A SLEEPING SICKNESS INVESTIGATION IN KENYA. 1926—1927.

Object.

To carry out a census of the Lake shore and riparian population with a view to ascertaining the present position as regards sleeping sickness in the infected areas.

The census was commenced in July, 1926, and completed in November, 1927, and a total number of 209,528 examined.

The following locations were visited and a census carried out :—

CENTRAL KAVIRONDO.

Samya, Kadimu, Sakwa, Uyoma, Asembo, Seme, Alego (certain areas), Kibigori, Kano Plains, Nyakatch	Population examined ...	128,147
	Trypanosomiasis ...	253

NORTH KAVIRONDO.

Bunyori (certain areas)	Population examined ...	2,934
	Trypanosomiasis ...	1

SOUTH KAVIRONDO.

Karachonya, Kochia, Kaniada, Kaniadoti, Kabwoch, Kabwai, Kaniamwa (certain areas), Kaniamkago, Mohoru, Kadem, Sunu, Gwassi, Kasigunga, Kaksingiri	Population examined ...	78,447
	Trypanosomiasis ...	134

Method of Carrying Out of Census.

At first, each village was written down with the total number of men, women, and children, as ascertained by interrogation of the people themselves, and as each individual came along to be examined his village was turned up in the list and marked off. This proved too laborious and uncertain, as many of the people were not possessed of sufficient intelligence to know the name of their village.

The method eventually used was to make each *mnyapara* bring all his people on one day, together with a list of those left behind to guard villages and cattle or those away from the location. By checking these figures with the adminstration's hut tax census remarkably accurate results were obtained. A final discrepancy of 8.10 per cent. was noticed, this being due to men engaged in work outside their location. Approximately 92 per cent. of the population were examined.

Method of Investigation.

The people were drawn up in long lines and examined by neck palpation and, in some locations, axillary palpation as well, and any with enlarged glands selected for microscopic examination irrespective as to whether the glands were those typical of trypanosomiasis. Again any cases with typical facies or those complaining of persistent headaches were selected.

At first thick films stained with a fresh mixture of Azur ii. and Eosin were used, but this method proved too laborious and uncertain.

Afterwards examination of fresh gland juice, followed by centrifuged citrated blood in negative cases and by lumbar puncture and subsequent examination of the cerebro-spinal fluid was found to be both rapid and accurate.

In over 80 per cent. of positive cases, trypanosomes were found in the fresh gland juice at the first examination, and in under ten minutes' search.

The examination of centrifuged blood does not appear very reliable as a method of investigation as compared with fresh gland juice. In many cases where trypanosomes were easily demonstrable in the gland juice they were not found in the centrifuged blood.

Palpation of axillary glands is labour in vain. In nearly every native palpable axillary glands are present as a result of injuries, scabies, etc., and in those natives in which trypanosomes were found in cervical glands, axillary glands were not always palpable and in none were they pronounced or typical.

Cerebro-spinal fluid cell counts were carried out for all cases to ascertain the progress of the disease and to estimate the effects of treatment.

Cerebro-spinal fluid cell counts of 200 or over have been regarded as diagnostic of sleeping sickness in a sleeping sickness area, even where trypanosomes have not been demonstrated in blood or glands; other diseases producing a high cell count having been eliminated.

The following figures give some idea of the number of people examined microscopically as compared with the number of cases :—

Karachonya	...	101 suspicious cases examined :	6 positive.
Kaniadoti	...	188 suspicious cases examined :	109 positive.
Kabwoch	...	42 suspicious cases examined :	2 positive.
Bunyori	...	83 suspicious cases examined :	None positive.

The present position in the various locations as revealed by the Census.

Samya.—50 cases found. These are scattered along the whole coast line. The infection is relatively unimportant, except for its proximity to the Uganda border. Nothing can be done by bush-clearing, as the operation would entail an enormous amount of work, and with so few cases not worth while. A census at intervals with subsequent treatment would appear the best way of dealing with the disease here.

Kadimu.—13 cases found. This location can be disregarded as cases are so few and bush so scattered.

Sakwa.—11 cases found. The infection is negligible. The few cases appearing to come from any and every part of the coast line and Yala River.

Uyoma.—113 cases found. This is the most highly infected location in Central Kavirondo. Cases were for the most part recently infected, and the chief states about one hundred people die yearly from the disease. Much can be done by cutting waterways, etc. A census should be taken at intervals, followed by treatment of cases.

Asembo.—2 cases found. These apparently contracted the disease in Uyoma. Nothing need be done here.

Seme.—38 cases found. The infection in this location is confined to a very small area in which, however, the infection is intense. Half the cases found were in an advanced stage and had had the infection to their knowledge from varying periods of 6 months to 2 years. The disease appears to be mild in this location. Twenty people are stated to die yearly. This appears an exaggeration. The disease can be eliminated by bush-clearing.

Alego.—19 cases found. These were contracted on the Yala River over a large area. Can be disregarded.

Kibigori.—4 cases found. Contracted on branch of the Nyando River. Negligible.

Kano Plains.—No cases found.

Nyakatch.—3 cases found. The natives state the disease has died out. On the other side of the Miriu River a totally different opinion exists. Probably through the constant influx of experts, sleeping sickness is so firmly established in the native mind that nearly all diseases from scabies to pneumonia are regarded as being due to trypanosomiasis. Steps have already been taken to eradicate the disease by clearing the Miriu River. Active cultivation of the cleared areas is present.

North Kavirondo.—1 case discovered. The disease was contracted at Seme, Central Kavirondo.

South Kavirondo.

Karachonya.—6 cases discovered. As the coast line in this location is over 40 miles in extent and bush exists for a very large part, with so few cases the location may be disregarded.

Kochia.—3 cases discovered. All contracted on Aloach River. Of the 3 cases only 1 showed trypanosomes. The other 2 were doubtful, showing clinical symptoms, and an increased cerebro-spinal cell count.

As only ten villages lie in close proximity to the river this location may be ignored.

Kaniada.—1 case found. This patient came from Kaniadoti, and contracted the disease there. Chief states no sleeping sickness since the epidemic.

Kaniadoti.—109 cases found. These all came from Kaniakela, a subdivision of this location, with a total population seen of 845. In addition, nearly all the other cases found in South Kavirondo contracted the disease here, either by passing through on safari or by cutting timber in the bush.

This is the only location in South Kavirondo that merits attention. Bush-clearing is impracticable owing to the enormous extent of the bush and to the scarcity of population.

Arrangements have been made with the Administration to evacuate the area.

The local *mnyapara* states that fifty people die yearly in his subdivision of sleeping sickness.

Of the 109 cases found, only 29 showed any variation from normal in the cerebro-spinal fluid, thus suggesting they were recently infected and that the old cases are dying quickly.

Kabwoch.—2 cases found. Both contracted the disease in Kaniadoti.

Kabwai.—3 cases. Two contracted disease at Kaniadoti and one at Kasigunga.

Kaniamwa.—4 cases. All contracted at Kaniadoti.

Kaniamkago.—No cases discovered. Case reported by Dr. Madgwick, Gendia Mission, said possibly to have contracted disease in this location. Case diagnosed on clinical grounds only.

Mohoru.—No cases.

Kadem.—No cases.

Sunu.—No cases.

Gwassi.—No cases.

Kasigunga.—6 cases discovered. Population so small and contact with fly so loose that no steps need be taken other than treating existing cases.

Kaksingiri.—No cases.

From evidence obtained from the natives, from reports of various medical officers in the past, although records of exact microscopical findings are unfortunately not available, and from observations during the investigation, it is evident that sleeping sickness is becoming less and less a menace to the maintenance of health in the native reserves.

Even now, provided a few elementary precautions are taken and kept up, it may be regarded as a comparatively negligible factor, and there seems no reason to doubt that in a few years' time, if prophylactic measures are carried out, it will be a matter of considerable difficulty to find even one case of sleeping sickness.

Virulence of the Disease.

The type of disease met with in Kenya is undoubtedly mild. Generally speaking, with the exception of cases at Kaniadoti, the disease appears to persist for a year to eighteen months before it invades the cerebro-spinal system as shown by the increased cell count, and even when this has occurred another year elapses before the patients are unable to fend for themselves.

The advanced cases linger on for months before death.

Treatment.

At first treatment was of a very haphazard order, due to two factors—an attempt to run treatment in one location concurrently with the census in another, and to the supplies of Bayer 205 and tryparsamide being irregular.

The line of treatment adopted was 1 gm. Bayer 205 given intravenously on the first, eighth and thirtieth days, followed by three weekly injections of 2 gms. tryparsamide.

Actually, owing to irregular treatment, many of the patients received a far greater number of injections than this. Eventually on the completion of the census in Central Kavirondo a tour of treatment was made, and all patients received the full course.

In South Kavirondo, owing to lack of time, the cases have so far only received a sterilising dose of Bayer 205. Arrangements have been made to ensure their obtaining the full treatment.

With such a disease, treatment in a hospital is imposible. The natives refuse to stay in for the two or three months necessary for cure, as they in many cases feel perfectly well. It is essential to visit them in their locations.

Prophylaxis.

In most places in Kenya the recognised methods, *i.e.*, bush-clearing, cutting of waterways and evacuation of areas, are not feasible propositions, as the disease is so scattered that it would mean clearing the whole coast line from the Uganda to the Tanganyika border, and, secondly, the percentage of infection is so small that it would be mere waste of time and money.

In three places, however, these methods should be adopted :—

At Seme, where bush-clearing would effectually eradicate the disease.

At Uyoma, where the cutting of waterways would materially lessen the chances of infection; and

At Kaniadoti, where evacuation of the area concerned would stamp out the infection.

Apart from these prophylactic measures, a medical officer should tour the infected locations every eighteen months, and carry out a rapid census. Treatment of the few cases found could easily be carried out by a trained dresser. This would establish a twofold object—diminish the risk of infection by eliminating the human carrier of the trypanosome and prevent any possible recurrence of the epidemic by obtaining timely warning.

Sleeping sickness in Kenya does not merit the full-time work of a medical officer. Two to three months every eighteen months would be ample time to devote to this disease.

Administration.

Great assistance has been rendered by Mr. Charles Tomkinson, District Commissioner, Central Kavirondo, and Mr. S. O. V. Hodge, District Commissioner, South Kavirondo, in the carrying out of the census.

General Diseases.

During the progress of the census, general diseases were treated in a tent used as a dispensary. 52,074 patients received treatment, including 16,400 injections for yaws and syphilis.

APPENDIX B.

ANNUAL REPORT OF THE PROCEEDINGS OF THE BOARD OF HEALTH FOR THE YEAR 1927.

The Public Health (Building) Ordinance, Chapter 125 of the Revised Edition of the Laws of Kenya.

The Membership of the Board consisted of :—

The Director of Medical and Sanitary Services (*President*).
The Director of Public Works.
The Commissioner of Lands.
The Director of Land Surveys.
A. C. Tannahill, Esq.
The Deputy Director of Sanitary Services.

2. Summary of work done :—

(*a*) Meetings held during the year	8
(*b*) Applications for sub-divisions outstanding from previous year	2
(*c*) Applications for sub-divisions submitted during the year	20
(*d*) Applications for sub-divisions approved during the year	8
(*e*) Applications for sub-divisions rejected during the year	4
(*f*) Applications for sub-divisions referred back for modification	8
(*g*) Applications for sub-divisions re-submitted ...	3
(*h*) Applications for sub-divisions re-submitted and returned for further modification	3
(*i*) Applications for sub-divisions outstanding at end of year	8

The following matters of special interest present themselves as the outcome of the year's work.

As in previous years the Board has rejected certain proposals for the sub-division of estates on the outskirts of Nairobi Township on the grounds that close development on these sites is undesirable in the absence of a satisfactory system of drainage, or of any organization for the removal and disposal of refuse and night soil.

The problems connected with scattered settlement on the outskirts of Nairobi Township are becoming increasingly more difficult and no satisfactory solution for dealing with them has up to the present been found. The matter, however, is under consideration by Government. The amalgamation of these scattered communities under one local governing authority may prove to provide the solution to the problems.

Copies of all plans of proposed sub-divisions submitted to the Board have been forwarded to the local authority concerned with a request for their recommendations. As a result of this procedure the Board has been favoured with many helpful suggestions.

During the year the Board addressed Government inviting its attention to the necessity for a township at Turbo which should be established on a proper lay-out and on a suitable and healthy site either in conjunction or otherwise with local landowners.

During the course of their deliberations the Board have in some cases found it necessary, before finally approving schemes of proposed sub-divisions, to require the applicants to construct certain roads, roadside drains, culverts, etc., indicated on the plans.

In two cases the Board required the applicants to enter into an agreement and to give a bond for the construction, when so required by the Board, of certain roads, etc., indicated on the plans. In one of these cases the agreement was entered into and the bond given and the plans were approved. The details of the other scheme were not quite completed and at the end of the year had not been finally approved.

Towards the end of the year the attention of the Board was drawn to certain irregularities which had been occurring. Before taking legal action against any persons the Board warned the public by notices in the Official Gazette and local papers of the necessity of obtaining the Board's approval before proceeding to divide any land situated within five miles of the limits of any township or within two miles of any railway station and also that it will be necessary in all future cases for legal action to be taken.

During the year the Board have experienced difficulty in administering the Ordinance as the wording in certain sections is not clear. Arising out of representations made by the Board to Government and also in view of the introduction of local government into the Colony it is understood that Government is preparing a new Ordinance and it is hoped that the new Ordinance will be brought into force early in the new year.

JOHN L. GILKS,
President.

APPENDIX C.

ANNUAL REPORT OF THE PROCEEDINGS OF THE CENTRAL BOARD OF HEALTH FOR THE YEAR 1927.

(*The Public Health Ordinance, No. 38 of* 1921.)

1. Members of the Board, Resignations, New Appointments.

(*a*) The membership of the Board consisted of :—

The Hon. Director of Medical and Sanitary Services, J. L. Gilks, Esq., M.L.C., M.R.C.S. (Eng.), L.R.C.P. (Lond.), F.R.C.S. (Edin.), *Chairman.*

The Deputy Director of Sanitary Service, A. R. Paterson, Esq., M.B., Ch.B. (Glas.), D.P.H. (Camb.), D.T.M. & H. (Camb.)

G. V. W. Anderson, Esq., M.B., B.S. (Lond.), F.R.C.S. (Eng.).

W. H. Kauntze, Esq., M.B.E., B.A., M.D., Ch.B., D.P.H. (Vict. Univ.), M.R.C.S. (Eng.), M.B., B.S., L.R.C.P. (Lond.).

G. V. Maxwell, Esq., M.L.C.

H. L. Sikes, Esq., M.L.C., B.A., B.E., M.Inst. C.E., F.G.S.

A. J. Jex-Blake, Esq., M.A., M.D. (Oxon.), F.R.C.P. (Lond.)

T. A. Wood, Esq., C.M.G., M.B.E.

C. R. Davidson, Esq., A.M.I.C.E.

(*b*) The Deputy Director of Sanitary Service, who acted as Secretary, was absent on leave during the latter part of the year and his position was filled by the Acting Deputy Director of Sanitary Service, F. J. C. Johnstone, Esq., M.D., Ch.B. (Edin.), D.P.H. (Edin. & Glas.), D.T.M. (Liverpool).

(*c*) There were no resignations or new appointments during the year.

2. Meetings of the Board.

Three meetings of the Board were held during the year. A fourth meeting was postponed as a quorum was not available.

3. Regulations Submitted to the Board for Confirmation.

The following regulations were submitted to the Board for approval and confirmation in accordance with the provisions of section 16 of the Ordinance.

(*a*) The Mombasa (Control of Meat for Human Consumption) Rules, 1927. These Rules, which are designed to make provision for the clean handling and conveyance of meat, after some minor alterations were approved by the Board.

(*b*) The Nairobi Lodging House By-laws, 1927.—These By-laws were designed to empower the Nairobi Municipal Council to prevent the lodging of natives in the more congested areas of the town and to prevent the use of unsuitable buildings in the commercial area for the housing of natives. The Board, being of opinion that the By-laws as drafted were unlikely to achieve the object desired, did not confirm them, but invited the Municipal Council to give consideration to draft lodging house rules which had been prepared by the Medical Department.

(*c*) The Nairobi (Building Amendment) By-laws, 1927.—These By-laws which provide for an extension of the area in which only brick, stone or concrete shall be used in the construction of new buildings, received the approval of the Board.

4. Other Matters Considered by the Board during the Year.

(*a*) *Draft Drainage and Latrine Regulations.*—A committee of the Board was appointed to consider these regulations, which had been prepared by the Medical Department. The committee was unable to report before the end of the year.

(*b*) *Draft Building Rules.*—These Rules were submitted to the Board by the Medical Department towards the end of the year and were referred to a committee of the Board for consideration.

(*c*) *Anti-Malarial Measures in Nairobi.*—The control of malaria was discussed by the Board on several occasions during the year and as a result of representations to Government anti-malarial works were undertaken in a few areas. At the last meeting of the Board towards the close of the year the Director of Medical and Sanitary Services stated that Government had decided to insert a sum of £20,000 in the 1928 estimates for anti-malarial measures in Nairobi. The work would be under the control of the Commissioner for Local Government and the Nairobi Corporation and the Kenya and Uganda Railway authorities were being asked to co-operate and contribute towards the cost of any schemes necessary.

(*d*) *Layout of a Native Location at Eldoret.*—Plans for the layout of a Native Location at Eldoret which had been prepared by the Medical Department were placed before the Board for consideration.

(*e*) *Control of the Practice of Midwifery.*—Towards the end of the year the attention of the Board was called to the danger of the spread of puerperal fever by unqualified Indian midwives. The necessity of exercising some form of control over such persons was discussed by the Board, and draft rules providing for the licensing of such persons were considered. The Director of Medical and Sanitary Services was asked to submit the draft rules to the Nairobi Municipal Council with a view to bringing them into force in Nairobi should the Council consider this course desirable.

JOHN L. GILKS, *Chairman.*

F. J. CARLYLE JOHNSTONE, *Secretary.*

COLONY AND PROTECTORATE OF KENYA.

ANNUAL REPORT

OF THE

MEDICAL RESEARCH LABORATORY

FOR THE YEAR 1927.

BY

W. N. KAUNTZE, M.D., D.P.H.

Director of Laboratory.

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KENYA COLONY AND PROTECTORATE.

MEDICAL RESEARCH LABORATORY.

STAFF 1927.

DEPUTY DIRECTOR OF LABORATORY SERVICES :

W. H. Kauntze.

SENIOR BACTERIOLOGIST :

G. V. Allen (till 25th November, 1927).

ASSISTANT BACTERIOLOGISTS :

J. C. J. Callanan (till 1st March, 1927).

F. P. G. de Smidt.

N. M. Maclennan (15th April to 16th July, 1927).

J. H. H. Chataway (1st February to 5th October, 1927).

H. D. Tonking (from 12th July, 1927).

F. W. Vint (from 3rd October, 1927).

GOVERNMENT ANALYST :

M. H. Fox (from 7th February, 1927).

CHEMICAL OFFICER :

F. C. Kelly (till 19th October, 1927).

D. Harvey (from 14th November, 1927).

MEDICAL ENTOMOLOGISTS :

C. B. Symes.

G. H. E. Hopkins (from 20th March, 1927).

LABORATORY ASSISTANTS :

F. A. Bailey (Senior Laboratory Assistant).

J. A. Bell.

J. S. McDonald.

H. M. Nefdt.

R. Brunsden (Learner).

W. E. Grainger (Learner).

T. Jones (Learner).

Miss M. J. Bromhead (Learner, from 1st September, 1927).

Ramji Das.

W. Pema.

J. St. A. M. de Souza.

Faqir Mohamed.

Elisha Nyalondo.

LIBRARIAN AND STENOGRAPHER :

Miss J. M. C. Millett.

Miss K. L. Grant (from 5th December, 1927).

CLERK AND STOREKEEPER :

M. de Souza.

ANNUAL REPORT OF THE MEDICAL RESEARCH LABORATORY, KENYA COLONY AND PROTECTORATE, FOR 1927.

A.—ADMINISTRATION SECTION.

1.—Changes in Staff.

Dr. Connolly was attached for duty to the Laboratory on 20th January, 1927, and was posted to Nairobi Health Office on 8th March, 1927.

Mr. Pearson came to the Laboratory for special instruction in anti-malarial measures on 29th January, and was posted to the Nairobi Health Office on 5th April, 1927.

Dr. Chataway was transferred from Fort Hall and seconded for duty at the Laboratory on 1st February, 1927; he returned to Fort Hall on 5th October, 1927.

Mr. Fox was transferred from Scott Agricultural Laboratories and assumed duty as Government Analyst on 7th February, 1927 (mornings only), and full day from 19th May, 1927.

Mr. Hopkins was appointed as second Medical Entomologist on 18th February, 1927, and assumed duty on 20th March, 1927.

Dr. Callanan was detailed for duty in connection with research into native dietaries on 1st March, 1927.

Dr. Hutchinson was attached for duty to the Laboratory on 13th December, 1926, and was posted to the Nairobi Health Office on 9th April, 1927.

Dr. Maclennan was attached for duty to the Laboratory on 15th April, 1927, and was posted to Digo District on 16th July, 1927.

Dr. Tonking was appointed Assistant Bacteriologist on 10th June, 1927, and assumed duty on 12th July, 1927.

Dr. Vint was appointed Assistant Bacteriologist on 2nd September, 1927, and assumed duty on 3rd October, 1927.

Dr. Kelly resigned from his appointment as Chemical Officer on 19th October, 1927.

Dr. D. Harvey was appointed Chemical Officer on 26th October, 1927, and assumed duty on 14th November, 1927.

Miss K. L. Grant was transferred from Head Office, and took over duties of Librarian on 5th December, 1927.

Miss M. J. Bromhead resigned from her appointment as Laboratory Assistant (Learner) on 31st December, 1927.

Dr. G. V. Allen, Senior Bacteriologist, was transferred to the Federated Malay States as Bacteriologist from 25th November, 1927.

2.—Leave.

Dr. G. V. Allen, Senior Bacteriologist, proceeded on leave on 19th February, 1927.

Mr. C. B. Symes, Medical Entomologist, proceeded on leave on 6th August, 1927.

Mr. M. de Souza, Clerk and Storekeeper, proceeded on leave on 28th June, 1927.

3.—Organisation.

The title of "Director of Laboratory" was changed during the year to "Deputy Director of Laboratory Services," a recognition not only of the fact that laboratory services for the Colony cannot be centred in one single institution, but also of the principle that every medical officer is as much responsible for routine laboratory investigations and research in his district

as he is for medical and sanitary supervision. It is hoped that in future the Medical Research Laboratory at Nairobi will not be looked upon as an institution competing as regards money with other services, but as an integral part of those services, whether medical or sanitary, any single part being incomplete without the others.

The staff detailed in the 1926 Annual Report was, as regards appointments, completed during the year. Unfortunately, however, owing to the absence on leave of Dr. Allen and his subsequent transfer to the Federated Malay States, to the transference of Dr. Callanan to the Medical Division, and to the vacancies caused by the departures of Dr. Hunter and Dr. Callanan not being filled till the latter half of the year, there has been a constant reshuffling of the duties of the various posts with serious disadvantages due to lack of continuity of work. Indeed, had it not been for the assistance given by Dr. Chataway and Dr. Maclennan, who were detailed for duty from the Medical and Sanitation Divisions respectively, it would have been impossible for a time to cope with the ordinary routine work of the Laboratory.

It cannot be emphasised too strongly, however, that this constant change of staff hinders the development of Laboratory investigations, and though from a personal point of view one cannot but welcome promotion for the more junior members of the staff, the resulting alterations of duties are extremely unfortunate from the outlook of Colonial Medical Research.

If the Laboratory services in the Colonies were properly co-ordinated and combined into a single unit, it might be found possible to arrange for promotions to take place with the least possible movement of staff and a consequent great gain to efficiency.

In the Biochemical Section we have to record the great loss the Colony has suffered by the resignation, on the grounds of health, of Dr. Kelly. Thanks to him, experiments on nutritional problems have been carried out at the Nairobi Prison, as to the effect of various additions to the dietary of a number of long-term prisoners. In this work we have had the advantage of the advice and assistance of Dr. Henderson, of the Rowett Research Institute, who has been working here on the problem of tropical ulcers. It is hoped that in the near future it will be found possible to publish the results of these dietetic investigations for general information.

The vacancy which existed at the beginning of the year for a European Laboratory Assistant (Learner Grade) was filled in September by the appointment of Miss Bromhead.

A few of the African Laboratory Assistants have made great progress during the year in their knowledge of laboratory technique. We have also undertaken the training of a considerable number of Africans for work as Laboratory Assistants in hospital at other centres than Nairobi. Indeed, this expansion of the Laboratory Division to include services in out-stations is one of the marked features of the year's work, and as most of such assistants were not available for posting to out-stations till the latter half of the year the effects of this extension of work cannot yet be estimated. It is hoped during 1928 to open small clinical laboratories at almost all of the out-station hospitals, where routine examination of blood, fæces, pus, sputum, etc., can be carried out under the direction of the medical officer.

All Africans employed in laboratory work have now been placed on definite grades of pay according to their abilities, these grades being those enjoyed by Africans working in the Medical Research Laboratory in Nairobi; there is therefore a greater uniformity of pay and attainment than has been possible in former years. As a result of the extension of laboratory facilities a greater knowledge of disease amongst the natives in the reserves should be obtained, and a greater definiteness in diagnosis achieved than can be given merely on clinical grounds. It should also lead to more co-operation between officers of the Medical and Sanitation Divisions and the Laboratory, and if that means that Medical Officers in out-stations realise that they are as much responsible for laboratory work in their district as for other medical work, there will be less inclination to look upon the Medical Research Laboratory as a purely extraneous organisation. In connection with this expansion it is expected that in 1928 it will be possible to post a European Laboratory Assistant at the Native Hospital in Mombasa to supervise the work of the African Assistants there, and this, in conjunction with the posting

of the one of the present European Laboratory Assistants to the Native Hospital in Nairobi, should enable us to decentralise a considerable amount of the routine work of the Central Laboratory in Nairobi. This will enable officers at that Laboratory to give more time to research into problems of tropical disease, and will also allow of visits being paid by them to other stations when necessary, either for the inauguration of new departures in investigation or to give assistance in the event of an outbreak of some epidemic disease.

4.—Library.

The Library organisation has remained unaltered from the previous year. Unfortunately, owing to the large amount of office work, it was impossible, until the appointment of a second stenographer towards the close of the year, to keep a check on books and journals which were out on loan. This, however, by the close of the year, had been rectified, and it is hoped that in future it will be more difficult than in the past for books or periodicals to go astray. With this additional staff it should also be possible to give assistance in the way of looking up references on particular subjects for medical men who are not stationed in Nairobi, and therefore unable to see reference works for themselves. A small amount of such work has been done already during the year, but it has always meant that one of the scientific staff has had to carry out this duty usually out of office hours. Additions to the Library have been notified as they occurred in the Kenya Medical Journal, so that the catalogue of books could be kept up-to-date by Medical Officers in out-stations.

5.—Buildings.

There is again no change to record for the past year. The congestion of the Laboratory rooms has, however, increased to an alarming extent, so much so, indeed, that there is but 69 square feet of floor space for each individual of the inside Laboratory staff, and when it is considered that from this area must be subtracted that required for benches, cupboards, tables, sinks and apparatus, it will be realised that the congestion makes it almost impossible for any officer to give of his best, and leads to constant mental irritation and eventually to deterioration of morale. It is hoped early in 1928 to effect the transference of a certain number of the clinical pathological routine examinations to a small branch laboratory at the Native Hospital, Nairobi. This will enable some of the workers (about three) to be moved out of the present Laboratory.

6.—Research.

The following articles have been published during 1927 by members of the Laboratory staff, in the Journal noted :—

F. P. G. de Smidt.—A Type of Monilia in a Case of Suspected Pulmonary Tuberculosis in a European (*Kenya Medical Journal*, Vol. III, p. 272).

J. C. J. Callanan.—Preliminary note on the value of three examinations of Fæcal specimens in the Diagnosis of Entozoal Infections (*Kenya Medical Journal*, Vol. III, p. 290).

J. M. Henderson.—Some aspects of Growth and Nutrition (*Kenya Medical Journal*, Vol. III, p. 333).

W. H. Kauntze.—Polyvalent Vaccine in the Prophylaxis of Bacillary Dysentery in East Africa (*Kenya Medical Journal*, Vol. III, p. 342; Vol. IV, p. 17 and p. 51).

F. P. G. de Smidt.—A Device for Anaerobic Cultivation in Single Small Tubes (*Kenya Medical Journal*, Vol. III, p. 354).

J. C. J. Callanan.—Occurrence of Intestinal Parasites at the Native Hospital, Nairobi (*Kenya Medical Journal*, Vol. IV, p. 103).

F. P. G. de Smidt.—Plague and Protective Vaccines (*Kenya Medical Journal*, Vol. IV, p. 210).

F. C. Kelly and J. M. Henderson.—Analysis of Diets in the Native Hospital and Prison, Nairobi (*Kenya Medical Journal*, Vol. IV, p. 232).

C. B. Symes.—Key to the identification of Common Anophelines of Kenya (*Kenya Medical Journal*, Vol. IV, p. 281).

(*a*) *Trypanosomiasis.*

Little investigation has been done during the year on this subject owing to the detailing of an officer from the Medical Division to investigate the whole question of the distribution of sleeping sickness cases in the districts round Lake Victoria which fall within the boundaries of Kenya Colony. The investigation of strains of trypanosomes supplied by Dr. Corson from Musoma has been continued mainly in relation to the histological appearances found in experimentally infected animals.

(*b*) *Malaria.*

The work that has been done during 1927 on this subject is recorded in the report of the section of Medical Entomology. Unfortunately, though the appointment of a second Entomologist occurred early in the year, the departure of Mr. Symes on leave in July has not enabled us to increase to any extent the area of entomological work. The investigation of the results of blood examinations on a sisal estate near Nairobi, which was reported in the 1926 Report, has been continued, and an attempt made to estimate the effect of treatment of a group of boys by daily doses of 30 grains of quinine continued over a period of a month. The results of this investigation, as also of that of intestinal parasites amongst the same boys, will be published, it is hoped, at an early date, but it may be said here that no appreciable effect on health or on the occurrence of malarial parasites in the blood of the boys under examination has been observed. One striking feature of the investigation has been the appearance and disappearance of parasites in the blood with no clinical signs whatever.

(*c*) *Yaws.*

As Dr. Allen, who initiated the work on this disease, has been on leave since the early part of the year, and was only transferred to the Federated Malay States at the close of it, only routine examinations of sera sent in from various stations, more particularly Nairobi, by Wassermann and Sigma tests have been carried on. The results of his investigation in 1926 were presented by Dr. Allen for the Doctor of Medicine degree at Belfast, and it is understood that they will be published in one of the journals at an early date. An alarming aspect of the results of routine examination of blood sera is the doubt thrown by them on the value of treatment by bismuth salt at present in use for yaws. Sigma figures of 500 or more have been obtained in patients who have had full courses of treatment.

(*d*) *Intestinal Helminths.*

The collection of data on this subject from the Nairobi Prison and from the sisal estate mentioned under (*b*) above, has been continued during the year. No conclusions can be reported at the moment as the figures are being examined by the Government Statistician. It can be said, however, that the results of monthly examinations of the faeces of the group of labour at the sisal estate show that practically every African harbours one or more intestinal parasites, and that even after treatment with an anti-helminthic drug, re-infection occurs at a very early date under the present sanitary (or insanitary!) arrangements on shambas. Two papers on the subject have been published by Dr. Callanan in the Kenya Medical Journal, from which one must assume that the basing of statistics on the examination of a solitary sample of faeces can only prove unreliable. Sufficient facts are now available to show that the question of intestinal helminths is one closely associated with the deficient nutrition so frequently seen in the native population. In the district about Nairobi it would seem that the common intestinal worms, when the total numbers present in each individual are taken into consideration, are Taenia and Ascaris. Ankylostomiasis in this district seems only to occur as a very light infection. It is probable, however, that the relative incidence of infection of the different helminths varies considerably in different parts of the Colony, and reports from the regions round about Mombasa suggest that ankylostomiasis is of much greater importance than it is in the inland districts of Kenya.

Arrangements are being made whereby a complete clinical and bacteriological examination of some of the members of one of the villages south of Mombasa will be carried out in the early months of 1928, after which mass treatment for helminthic infection will be carried out by the Medical Officer in charge of the district. It is hoped that these examinations will be repeated on the same individuals over a period of years at regular intervals, so that the effects of anti-helminthic treatment may be estimated and the progress of diseases such as tuberculosis may be watched from the time of the early clinical manifestations to the terminal result.

The work which was carried out by Dr. Carman and Mr. Daubney at the Reformatory at Kabete into the presence of helminthic infection and the effects of treatment amongst the inmates of this institution was concluded during the year, and a paper will appear shortly embodying the results.

(*e*) *Nutritional Problems.*

Probably the work which has been done on the question of diet and disease is the most important undertaken by the Laboratory during the year, and although no outstanding facts have yet been discovered sufficient has been done in the way of preliminary work to point to the presence of food deficiency as a constant feature of native nutrition. In the course of this work an analysis was made of the diets at the Native Hospital and Prison, Nairobi. This has been published by Dr. Kelly and Dr. Henderson in the Kenya Medical Journal, as noted above. Feeding experiments were carried out on a group of prisoners at the Nairobi Prison; such experiments consisting of the addition to the normal diet of certain extras such as a mineral mixture and cod-liver oil. The results obtained in the first period when these extras were given were checked by reshuffling the individuals concerned, so that those who did not obtain the extras in the first part of the experiment received them in the second. Very significant results were obtained in regard to increase of weight, and these results are rendered more significant by the fact that the experiment was conducted with men who had presumably reached the end of the growth period. In addition to these feeding experiments, another was undertaken on five youths from the prison, in which an estimation of the calcium metabolism was made in addition to the recording of weights. These two pieces of research work were carried out jointly by Dr. Kelly and Dr. Henderson, and the reports of them, it is expected, will be published early in 1928. Dr. Henderson, of the Rowett Research Institute, has continued his investigations into the causation of tropical ulcers, and Dr. Foster, of the same Institute, has commenced a collection of local foodstuffs, together with the compilation of information about the physical condition of reserve natives, at first in collaboration with an officer seconded from the Laboratory Division and later by himself. Towards the close of the year, after the arrival of Dr. Harvey, who took over the work of Dr. Kelly, an experiment was commenced in which the results of the addition of calcium carbonate and bone meal to the ordinary diet were checked by estimations of calcium retention and of weight.

(*f*) *Plague.*

The investigation reported under this heading in the 1926 Annual Report has been continued during the year. The occurrence of a small epidemic of plague in and around Nairobi has enabled us to supplement our collection of plague cultures, and we have thus been enabled to prepare plague vaccine from very recently isolated strains. Reports on the vaccine have been somewhat contradictory, but on the whole what evidence there is goes to prove that its efficiency is at least as great as that of Haffkine's Plague Prophylactic Vaccine. Experiments carried out by Dr. de Smidt on laboratory animals confirm the circumstantial evidence derived from inoculation of the native population. One of the main difficulties experienced is the great local and general reaction which follows the injection of the vaccine, and experiments are now in progress to determine whether this toxicity can be reduced and whether the present dosage is higher than is absolutely necessary for production of full immunity. Attempts made by Dr. de Smidt to discover serological strains of plague bacilli have proved unsuccessful, and it is probable that there is little serological difference between bacilli isolated in various epidemics and from different areas. One of the most interesting facts observed

regarding plague cultures is the frequent occurance of a contamination with a short strain of *Streptococcus*. Cultures which at first appear pure, after a short time may show the presence of these *Streptococci*. The significance of this phenomenon is under investigation.

(*g*) *Coli Vaccines.*

One of the most important pieces of evidence in favour of the value of these vaccines in cases of chronic rheumatism and rheumatoid arthritis is the constant demand from the general public for them. Little change has been made in the actual method of preparation, with the exception that trial has been made of vaccines made from cultures of B. coli isolated from the patient's faeces, prepared on the lines of Horder's immunogen vaccine. In most of the cases in which these immunogen coli vaccines have been used, very considerable success has been attained, and in one instance where the ordinary coli vaccine has been badly tolerated, the corresponding immunogen vaccine has almost completely cured the patient.

(*h*) *General.*

In the Annual Report of 1926, a list is given of the proposed programme of research to be undertaken in 1927, and the succeeding years. Of this programme the following investigations have been put in hand :—

Malaria.—Group I, (*a*) and (*c*).
Group II, (*a*) and (*c*).

Plague.—Group I, (*a*) and (*b*).
Group II, (*a*), (*b*) and (*c*). ((*c*) was carried out by an officer of the Sanitation Division at Kisumu, and was reported in the Kenya Medical Journal, Vol. IV, p. 287.)

In May, 1927, a survey of wild rodents in the Nakuru area was begun as the result of an epidemic of plague which occurred there, both amongst humans and rodents. The species of wild rodent implicated in this instance was *Arvicanthus abyssinicus*. A considerable amount of information as to the habits of the flea population of rodents in this agricultural area has been accumulated, and there is little doubt of the important position wild rodents may take in a plague epidemic, as the result of the close association of *Rattus rattus kijabius* (the common house rat) and *Arvicanthus abyssinicus* in the fields, and the fact that the flea population of these two animals is apparently interchangeable.

Ulcers.—Group II, (*a*) and (*b*).

Yaws.—Group II, (*a*) and (*b*).

Helminthiasis.—Group I, (*a*), (*b*) and (*c*).

Nutritional Problems.—Group I, (*a*) (this is being carried out by the Rowett Research Institute) and (*b*).

Pathology.—Group I, (*a*).

Trypanosomiasis.—Group II, (*a*).

Rheumatoid Arthritis.—Group II, (*a*) and (*b*) (and in addition trial of an immunogen type of coli vaccine).

Investigation on influenza was not begun owing to an outbreak of dysentery amongst Europeans and Africans, and the work necessitated by the isolation of the causal organisms of this epidemic prevented any other research work being undertaken.

B.—SEROLOGICAL SECTION.

1.—Wassermann and Sigma Tests.

During 1927 the number of specimens of blood sent in for examination by the Wassermann reaction has been steadily increasing, the total being 2,631. Of these the majority were sent in the course of ordinary routine work, and as the clinical history given on the cards was usually very inadequate, no conclusions could be drawn from them as the result of the examinations. Most of the sera sent in were merely subjected to the Wassermann test, but in the case of specimens from the Nairobi Prison, Infectious Diseases Hospital and Native General Dispensary, where the patients were under observation by Dr. Carman before, during and after treatment, the Sigma test was performed in addition to the Wassermann.

In the majority of cases the sera of patients of these institutions was examined at least three times during the period of treatment, so that some idea may be obtained of the effect of bismuth injections in yaws and syphilis respectively. Data are in process of compilation with a view to some definite conclusions being arrived at as to the relative efficacy of bismuth in metallic form and of a sodium bismuth tartrate.

Below is given a table showing the actual figures for tests performed and comparing the results of the Sigma test and Wassermann test on the same sera. It will be noted that there is a relative disagreement between the two tests in over 16 per cent. of the cases, but of this number 13.3 per cent. represent cases in which the Wassermann reaction was negative and the Sigma positive, and it was noted that the great majority of these came from patients with yaws who had received eight or nine injections of bismuth :—

Wassermann Reaction.	*Blood serum.*
Positive	840
Negative	733
Contaminated sera	7
Anticomplementary	35
Coagulated sera	2
No serum received	3
Cards mixed	2
Total ...	1,622

Wassermann Reaction.	*C. S. Fluid.*
Positive	1
Negative	5
Total ...	6

Sigma Reaction.	*Blood serum.*
Positive	430
Negative	150
Total ...	580

Comparison of Sigma and Wasserman.		
Both tests positive	327 ...	56.8%
Both tests negative	132 ...	22.9%
Wassermann positive and Sigma negative	18 ...	3.1%
Wassermann negative and Sigma positive	77 ...	13.3%
Wassermann reaction positive, Sigma just positive (Sigma under 3 units)	23 ...	3.9%
Total ...	577 ...	100.0%

2.—Agglutinations.

During the year agglutinations were performed on 642 specimens of sera received, the Dreyer technique being used throughout. The action of these sera on B. typhosus, B. paratyphosus A, B. paratyphosus B, B. proteus X 19, M. melitensis, M. paramelitensis, and B. abortus was examined in each serum.

Three sets of cultures were also prepared and sent to out-stations, together with the necessary apparatus for performing agglutinations by the Garrow technique, which scheme, if satisfactory, will save time in making a diagnosis and relieve the central laboratory of a large amount of routine work.

The following are the results of the agglutination tests :—

Positive sera	234
Negative sera	408
Total ...	642

Single Culture Agglutinated :

B. typhosus	95
B. paratyphosus A.	11
B. paratyphosus B.	42
B. proteus X 19	2
M. melitensis	7
M. paramelitensis	1
B. abortus	1

Two Cultures Agglutinated :

B. typhosus and B. paratyphosus A ...	14
B. typhosus and B. paratyphosus B ...	14
B. typhosus and B. abortus	2
B. paratyphosus A and B. abortus ...	2
B. paratyphosus A and B. paratyphosus B	1
B. paratyphosus B and M. melitensis ...	1
B. paratyphosus B and B. proteus X 19 ...	1

Group agglutinations were given by some sera as follows, the titre of one culture being usually predominant :—

Three Cultures Agglutinated :

B. typhosus, B. paratyphosus A, and B. paratyphosus B	13
B. paratyphosus A, M. melitensis and M. paramelitensis	1
M. melitensis, M. paramelitensis and B. abortus (Bang.)	5

Four Cultures Agglutinated :

B. typhosus, B. paratyphosus A, B. paratyphosus B, and B. proteus X 19 ...	1
B. paratyphosus B, M. melitensis, M. paramelitensis and B. abortus	3
B. typhosus, M. melitensis, M. paramelitensis and B. abortus	2

Five Cultures Agglutinated :

B. typhosus, B. paratyphosus A, M. melitensis, M. paramelitensis and B. abortus	1
B. typhosus, B. paratyhosus B, M. melitensis, M. paramelitensis, and B. abortus	2

Six Cultures Agglutinated :

B. typhosus, B. paratyphosus A, B. paratyphosus B, M. melitensis, M. paramelitensis, and B. abortus	1

C.—CALF LYMPH SECTION.

1.—Staff.

The staff this year has been unaltered, consisting of an Indian Laboratory Assistant (Mr. Pema) and four Africans. The responsibility for the experimental animals has also been Mr. Pema's. The whole work of the section has been under the supervision of an Assistant Bacteriologist.

2.—Buildings.

These have remained unaltered and are still very unsatisfactory.

3.—Calves.

Through the courtesy of the District Commissioner of Kyambu and Dagoretti, the number of calves received was 130. Of these, 118 were successfully vaccinated; 2 failed; on 3 the lymph was not collected as the vesicles were very poor; while 7 calves were not vaccinated, 5 being rejected, 1 having died and 1 being lost whilst grazing.

Eight calves in all died of East Coast Fever, so that compensation during the year amounted to £67-10-0, an item which appreciably increased the cost per dose of calf lymph manufactured.

4.—Production of Calf Lymph.

The method of production was the same as described in previous years.

BELGAUM STRAIN, 1927.

870 (11 V.G.)

949 (5 G.) | 950 (6 F.) | 951 (15 G.)

935 (11 V.G.)

953 (3 V.G.) | 954 (10 G.) | 955 (10 G.)

Rabbit 34 (Good)

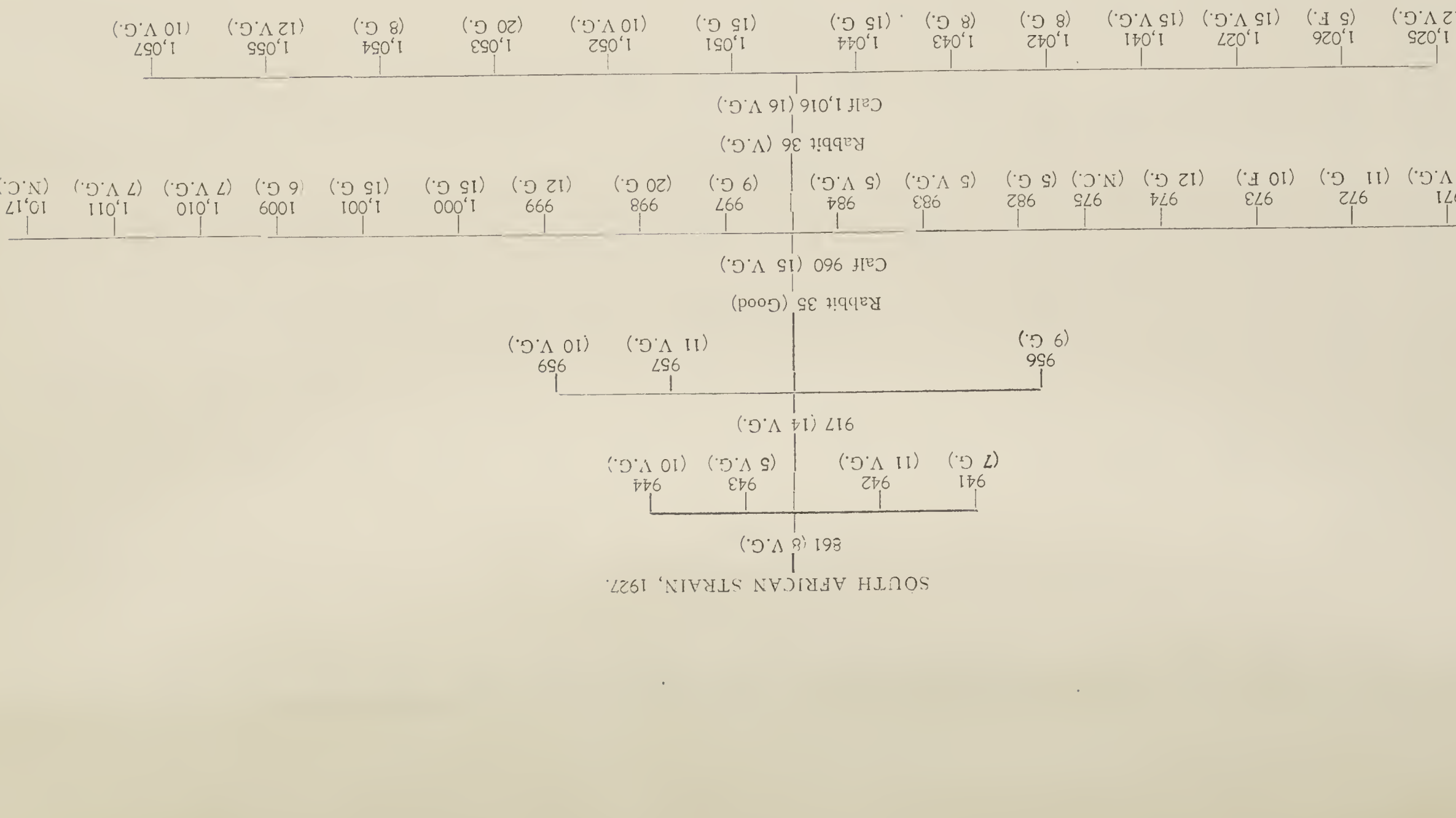
Calf 958 (7 V.G.)

968 (12 G.) | 969 (20 G.) | 976 (15 G.) | 977 (9 G.) | 985 (10 G.) | 986 (8 V.G.) | 1,002 (5 G.) | 1,003 (5 F.) | 1,004 (6 G.) | 1,005 (10 V.G.) | 1,012 (7 V.G.) | 1,013 (10 G.)

Rabbit 38 (V.G.)

Calf 1,014 (17 V.G.)

1,023 (10 V.G.) | 1,024 (10 V.G. | 1,030 (16 G.) | 1,031 (23 V.G.) | 1,032 (15 G.) | 1,033 (9 V.G.) | 1,034 (12.) | 1,035 (14 V.G.) | 1,045 (30 G.) | 1,046 (10 V.G.) | 1,047 (18 G.) | 1,048 (15 G.) | 1,062 (14 G.) | 1,063 (12 G.) | 1,064 (10 G.)


SOUTH AFRICAN STRAIN, 1927.
861 (8 V.G.)
941 (7 G.)
942 (11 V.G.)
943 (5 V.G.)
944 (10 V.G.)
917 (14 V.G.)
956 (9 G.)
957 (11 V.G.)
959 (10 V.G.)
Rabbit 35 (Good)
Calf 960 (15 V.G.)
970 (10 V.G.)
971 (11 V.G.)
972 (11 G.)
973 (10 F.)
974 (12 G.)
975 (N.C.)
982 (5 G.)
983 (5 V.G.)
984 (5 V.G.)
997 (9 G.)
998 (20 G.)
999 (12 G.)
1,000 (15 G.)
1,001 (15 G.)
1009 (6 G.)
1,010 (7 V.G.)
1,011 (7 V.G.)
10,17 (N.C.)
Rabbit 36 (V.G.)
Calf 1,016 (16 V.G.)
1,025 (12 V.G.)
1,026 (5 F.)
1,027 (15 V.G.)
1,041 (15 V.G.)
1,042 (8 G.)
1,043 (8 G.)
1,044 (15 G.)
1,051 (15 G.)
1,052 (10 V.G.)
1,053 (20 G.)
1,054 (8 G.)
1,055 (12 V.G.)
1,057 (10 V.G.)

ZANZIBAR STRAIN, 1927.

874 (14 V.G.)

945 (Nil) | 946 (N.C.) | 947 (Nil) | 948 (14 G.)

931 (10 V.G.)

962 (7 V.G.) | 963 (13 V.G.) | 946 (18 V.G.)

Rabbit 33 (Good)

Calf 961 (10 V.G.)

965 (6 G.) | 966 (10 V.G.) | 967 (16 G.) | 978 (15 G.) | 980 (10 G.) | 981 (8 G.) | 992 (8 G.) | 993 (12 G.) | 994 (10 V.G.) | 995 (11 G.) | 996 (10 V.G.) | 1,006 (6 G.) | 1,007 (10 V.G.) | 1,008 (12 G.)

Rabbit (37 V.G.)

Calf 1,019 (10 V.G.)

1,020 (12 V.G.) | 1,021 (12 G.) | 1,022 (14 V.G.) | 1,028 (20 G.) | 1,029 (18 G.) | 1,036 (10 G.) | 1,037 (8 G.) | 1,038 (20 G.) | 1,039 (8 V.G.) | 1,040 (10 V.G.) | 1,049 (15 G.) | 1,050 (16 V.G.) | 1,058 (13 G.) | 1,059 (10 V.G.) | 1,060 (6 G.) | 1,061 (18 V.G.) | 1,065 (10 V.G.) | 1,066 (12 G.) | 1,067 (20 G.)

MED

Vaccination Return 1927.

Stations.	Total No. of doses issued.	Total No. of persons vaccinated.	Sex.			Age.			Race.				Primary Vaccination.				Re-Vaccinations.				Previous Vaccinal Condition Unknown.			
			M.	F.	U.	A.	C.	U.	E.	A.	A.	U.	T.	S.	F.	U.	T.	S.	F.	U.	T.	S.	F.	U.
Eldoret	560	221	221	..	..	221	..	..	..	..	221	..	93	55	6	32	128	54	69	5	..	..	4	..
Fort Hall	56,050	20,340	15,147	5,193	..	20,337	3	..	9	5	20,326	..	92	42	50	..	50	26	24	..	20,198	..	..	20,198
Kacheliba	150	145	83	62	..	145	..	..	..	..	..	145	145	107	38	..	..	..	..	..	..	..	..	..
Kisumu	78,021	14,665	14,639	26	..	14,298	335	32	1	78	14,586	..	36	28	2	6	508	171	209	128	14,121	..	..	14,121
Kakamega	26,000	2,312	2,312	..	..	2,312	..	..	..	..	2,312	..	751	198	2	551	1,561	54	32	1,475	..	..	..	..
Kapsabet	156	69	69	..	..	69	..	..	..	..	69	..	69	64	5	..	..	..	..	..	..	..	..	..
Kericho	550	Vaccination Returns not received for the year.																						
Kisii	6,850	3,616	3,612	4	..	3,612	2	..	3	..	3,612	1	1,850	9	..	1,841	1,766	4	..	1,762	..	..	..	..
Lamu	2,200	33	33	..	..	33	..	..	..	..	33	..	4	..	3	1	29	2	24	3	..	..	..	..
Machakos and Kitui..	102,720	43,499	597	..	42,902	596	1	42,902	1	..	43,498	..	446	72	6	368	151	27	12	112	42,902	..	..	42,902
Malindi	1,050	209	178	31	..	34	175	..	..	..	189	20	201	114	24	63	8	2	6	..	..	..	..	..
Meru	1,650	217	217	..	..	217	..	..	..	..	217	..	217	3	..	214	..	..	..	..	..	..	..	..
Mombasa	26,000	3,425	17	..	3,408	3,336	89	..	17	1,634	1,774	..	..	..	..	..	1	1	..	..	3,424	232	47	3,145
Nairobi	19,254	8,508	5,560	256	2,692	7,691	817	..	66	650	7,792	..	784	117	23	644	5,574	243	386	4,945	2,150	..	..	2,150
Nakuru	5,600	640	640	..	..	640	..	..	..	..	640	..	59	58	1	..	581	577	4	..	..	..	..	..
Nyeri	850	578	574	4	..	575	3	..	..	..	537	41	554	116	74	364	24	1	3	20	..	..	..	..
Voi	5,200	814	812	2	..	814	..	..	..	..	814	..	713	713	713	101	..	..	101	..	..	..	..	..
Various	1,228	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total ..	334,089	99,291	4,4811	5,578	49,002	54,932	1,425	42,934	97	2,367	96,620	207	6,014	983	234	4,797	1,162		769	8,551	82,795	232	47	82,516

5.—Summary of Calf Lymph Production in 1927.

Number of calves vaccinated	123
Number of calves vaccinated successfully	118
Number of grammes of pulp collected	1321.0 gms.
Average number of grammes of pulp per calf ...	11.19 gms.
Number of doses manufactured	396,300
Number of doses issued	334,089
Number of doses in stock at end of 1927	594,900
Cost of calf lymph production	£501-19-8
Cost per dose issued	0.3606 pence
Cost per dose manufactured	0.3004 pence

D.—PATHOLOGICAL SECTION.

1.—Histological Examinations.

262 pathological specimens were examined during the year. Of these 100 were from Europeans, 5 from Asiatics, 68 from Africans, 67 from post-mortems, and 20 from animals.

The details are as follows :—

Europeans.

Appendix	Total	56	Normal	6
			Acute Inflammation	26
			Sub-acute and Chronic Inflammation	24
Tumours	Total	29	Benign	17
			Malignant	12
Curettage	Total	9	Non-malignant	6
			Malignant	3
Lymph Glands ...	Total	6	Inflammatory	3
			Tuberculous	3
	Grand Total	100		

Asiatics.

Tumours	Total	4	Benign	—
			Sarcoma	1
			Carcinoma	3
Leprosy	Total	1		
	Grand Total	5		

Africans.

Tumours	Total	47	Benign	24
			Sarcoma	15
			Carcinoma	7
			Endothelioma	1
Granulomata ...	Total	10	Gumma and Yaws	5
			Tuberculous	3
			Hodgkins	1
			Leprosy	1
Glands	Total	7	Inflamed	7
Various	Total	4	Mycetoma	1
			B. pestis in Spleen	1
			Dermoid Cyst	1
			Gonorrhoeal Panophthalmitis	1

Post-mortem Specimens.

Tumours	Total	9	Benign		1
			Sarcoma		6
			Carcinoma		2
Tuberculosis specimens	Total	3			
Lungs	Total	2	Chronic Interstitial Pneumonia		1
			Collapsed		1
Pancreas	Total	3	Fibrotic		3
Spleen	Total	4	Abscess		1
			Malarial		1
			Chronic Inflammation		1
			Fibrosis		1
Liver	Total	37	Abscess		1
			Congestion		15
			Fine Cirrhosis		7
			Coarse Cirrhosis		4
			Fatty Degeneration		10
Brain	Total	3	Normal		2
			Malarial		1
Intestines	Total	4	Typhoid		3
			Bilharzia		1
Septicaemic Organs	Total	1			
Actinomycotic Ulcer	Total	1	... ...		1
Grand	Total	67			

Animals.

Organs for Trypanosomiasis	16
Liver for Schistosomiasis	1
Mass of granulation tissue from Lion's maul ...	1
Tuberculous Bovine Lung	1
Organs for Coccidiosis	1
	20

As in last year's Annual Report, the two most interesting specimens were primary carcinomata of the liver. One was sent in by Dr. Donnison, of Kisii, and the other one was found at a post-mortem in the Native Hospital, Nairobi.

2.—Post-Mortem Examinations.

108 post-mortem examinations were carried out by the Laboratory staff during the year; of these 32 were undertaken at the request of the Police. The following is a list of the post-mortem findings.

Alphabctical List of Post-mortem Findings.

Abscess—		
Liver	2	
Cerebral	2	
		4
Asphyxia—		
Strangulation	3	
Electrocution	1	
		4
Bronchitis		2
Carcinoma—		
Liver	1	
Intestines	1	
		2
Cerebral—Embolus		1
Dysentery—		
Bacillary	4	
Amoebic	1	
		5
Enteric—		
Enteric	8	
Peritonitis	3	
		11
Gangrene of Lungs		1

Alphabetical List of Post-mortem Findings.—Contd.

Heart—			
Aortic incompetence	1		
Endocarditis	1		
Myocarditis	1		
Pericarditis	2		
		——	5
Hodgkins Disease			1
Liver—			
Coarse Cirrhosis			1
Fatty Degeneration			1
Malaria—			
Cerebral	2		
Subtertian	2		
		——	4
Meningitis			1
Nephritis—			
Acute Parenchymatous	1		
Chronic Parenchymatous ...	1		
Chronic Interstitial	2		
		——	4
Plague—			
Septicaemic	10		
Pneumonic	3		
		——	13
Pneumonia			17
Poisoning			2
Scurvy			1
Septicaemia—			
Anthrax	1		
Streptococcal	2		
Undiagnosed	3		
		——	6
Shock following Rape			1
Spleen—Rupture			2
Tuberculosis			4
Wounds—			
Fracture of Pelvis	1		
Fracture of Skull	7		
Fracture of Ribs	1		
Gun shot wound of Heart ...	2		
Gun shot wound of Lungs ...	1		
		——	12
Unknown			3
			108

E.—BACTERIOLOGICAL SECTION.

The duties incumbent on this section are comprised under the following headings.

1. Examination of and reports on all material sent to the Laboratory for bacteriological investigation.

2. The preparation, storing, bottling, and issuing of vaccines for prophylactic use, and for use in treatment where autogenous vaccines are not demanded.

3. The preparation of autogenous vaccines for patients applying to the Laboratory; consultations with and treatment of patients by means of vaccines and also advice on such other medical treatments as may be indicated. The issuing of instructions for vaccine treatment of patients not personally dealt with in the section.

4. The storing, issuing, and keeping of records of anti-sera for therapeutic use. The giving of advice and instructions in regard to their use.

5. The preparation, controlling, and maintaining of stocks of all culture media and materials of a bacteriological nature required by the Laboratory and for use beyond its precincts.

6. The training of assistants for bacteriological laboratory work.

7. Research on bacteriological problems.

8. Miscellaneous duties.

A summary of the work done during the year is given below under the appropriate heading.

1.—Routine Bacteriological Examinations.

(*a*) *Total number of Specimens received requiring cultural examination* : 674.—A large proportion of these, especially specimens of faeces from cases of dysentery, etc., each involve an extensive series of secondary cultural and often serological tests.

(*b*) *Total of Specimens received requiring microscopical examination* : 1202.—A detailed summary relevant to heading 1, concludes this report.

2.—Stock Vaccines.

(*a*) *Prophylactic Typhoid-paratyphoid Vaccine.*—20,000 doses have been prepared during the year, and 7,250 doses issued. Recently a new principle has been evolved for the preparation of this, based on well-founded theoretical considerations which will be tested on what suitable laboratory animals are to be obtained—animal inoculations with typhoid organisms being of uncertain character : the process of manufacture involves the collection of fresh virulent strains of B. typhosus, etc., whenever opportunities offer.

(*b*) *Gonococcal and Staphylococcal Vaccines.*—Stocks have been maintained to meet the comparatively small demand for such " stock " vaccines. Since gonococci occur in marked serological strains, it is necessary to obtain cultures from infected patients whenever opportunities offer, often a difficult procedure, and to prepare special culture media for the purpose.

The policy of the Laboratory has been to prepare autogenous vaccines for individual cases to the exclusion as far as possible of vaccines of the " stock " variety.

(*c*) *Anti-Plague Prophylactic.*—The manufacture of prophylactic plague vaccine of the Haffkine type was instituted in November, 1926. For the year 1927, 260,000 doses have been prepared and stored, and 46,478 doses have been issued. This vaccine is less accurately called Haffkine than " Haffkine-type " ; because the classical process of its making in Bombay is necessarily greatly modified by the entirely different climatic environment of Nairobi in conjunction with certain factors resultant from the structural characters of the Laboratory. The process involves the continuous collecting of fresh virulent strains of plague bacillus by every possible means, the application of cultural and serological tests to these, and the testing of every brew of vaccine produced by means of specially contrived physical and chemical tests to control constancy of quality by a standard established by applying these tests to averaged samples of " Haffkine " received from Bombay. The decisive test, *viz.*, the potency of Nairobi plague vaccine for immunising rats, has—from the unavoidable shortage of Laboratory white rats, and the difficulties in the circumstances of obtaining and dealing with wild ones—been found possible up to date of only three applications. One of these experiments is still in progress, but the two completed have yielded very satisfactory results. White rats are probably more suitable than wild ones for experiment in induced immunity to plague, for they can be regarded as virginal in respect of plague infection. As to the results of inoculations so far carried out among Kenya natives, the collection of anything like accurate data is very difficult and deceptive ; but encouraging reports of efficacy of the prophylactic have been received from plague areas wherein careful collection of facts can be relied upon.

Detailed accounts of the procedure relative to Nairobi plague prophylactic and the research work entailed thereby, will shortly be contributed to the Kenya medical press. Attention is being given to the possibility of lessening the toxic effects of vaccination.

3.—Autogenous Vaccines.

197 autogenous vaccines have been made during the year. The number of patients on the register for treatment has been 36. A large proportion of these vaccines has been of the "agglutinating coliform" type, involving serological tests with the patients' blood, and concerned with the treatment of rheumatoid conditions: the results of treatment by these vaccines continue generally to be very satisfactory.

4.—Anti-sera.

The keeping of records of stocks and issues of anti-sera has been assigned to the Goan laboratory assistant Mr. J. de Souza, by reason of his aptitude for book-keeping; this irksome duty has been well done by him, especially in consideration of his having been constantly burdened with less inappropriate bacteriological routine work.

5.—Culture Media, etc.

The duties under this heading have devolved upon the assistant in charge of the Laboratory media room, Mr. J. S. McDonald, and, during his absence on leave, upon Mr. Ramji Das. Structural arrangements are highly unfavourable to orderly work, but notwithstanding this the duties have been exceptionally well carried through. A special culture medium has been elaborated adapted to all classes of bacteriological work; the material for its preparation costs practically nothing, Sh. 2 per mensem providing hundreds of litres.

6.—Training of Non-European Laboratory Assistants.

One Goan, Mr. J. de Souza, has been trained as a bacteriological laboratory assistant, with excellent results, so that he has proved capable of conducting all bacteriological routine work in a highly reliable manner. Through him, the training of a native in bacteriological laboratory methods has been conducted satisfactorily; the result is that time can be devoted to research.

7.—Research on Bacteriological Problems.

Research into the problems presented by plague and dysentery is in hand, and it is hoped to publish some results shortly.

8.—Miscellaneous Duties.

These are many and include sharing the work of other sections during the absence of the officer in charge.

Summary of Bacteriological Work under Heading 1.

Comparatively little of this is of general pathological interest.

(*a*) *Anthrax.*

Out of 9 lesions or specimens examined, 5 showed the presence of B. anthracis. Two European cases came under notice; both were positive, being veterinary officials who had become infected through post-mortem dealings with cattle; both recovered, and neither showed any serious general symptoms. The impression received from the cutaneous manifestations of anthrax in Kenya is that these are not comparable in severity with the European type.

(*b*) *Conjunctivitis.*

The three cases examined showed Koch-Weeks bacilli as the causative organisms.

(*c*) *Diphtheria.*

Out of 35 throat swabbings examined, 7 only were positive as to Klebs-Loffler bacilli.

(*d*) *Dysentery.*

Out of 276 specimens of faeces from ward cases, etc., chiefly native, B. dysenteriae of Shiga was found in 9 cases, and B. paradysenteriae of Flexner or Hiss type in 23, while in 76 cases unclassified or anomalous organisms only were found, these approximating in cultural reactions to type species of the typhoid-paratyphoid and dysenteric groups, but variant both serologically

and in fermentation reactions. It is impossible to say that none of these are incapable of setting up disease with the clinical features of typhoid or dysenteric enteritis; and they are being made a subject of research. Further, there are indications that some at least of the Flexner type organisms found in dysenteric conditions are of a distinct serological group.

(*e*) *Gonorrhoea.*

Out of 206 specimens of urethral or other urinogenital exudate, Diplococcus gonorrhoeae was identified by microscopic or cultural examination in 41.

(*f*) *Leprosy.*

Of 23 specimens or cases examined for the presence of B. leprae, all gave negative results.

(*g Meningococcus.*

D. meningitidis intracellularis was identified in 4 specimens of cerebrospinal fluid from cases of the posterior basal type.

(*h*) *Plague (Human).*

(i) *Gland or Spleen.*

Out of 99 specimens of gland or spleen from cases living or post-mortem, B. pestis was identified microscopically in 48. In all cases in which microscopical examination was positive, B. pestis was further identified by culture, fermentation reactions, and serological tests. These results bear out the impression that only about half the cases reported as plague on clinical grounds alone are correctly diagnosed, and that even post-mortem appearances are highly deceptive, and need confirmation by expert microscopical examination of tissues.

(ii) *Sputa.*

Out of 8 specimens of sputum received for examination from cases suspected as being plague, 2 showed the presence of B. pestis microscopically, and by cultural and serological tests. These did not indicate conditions of true pneumonic plague, but merely partial involvement of the lungs in the progress of general septicaemic cases.

(*i*) *Plague (Rats).*

156 rats were brought in for autopsy and examination for plague. Of these, 61 were rats found dead, while 95 were killed by trapping in "plague-spots,"—in or near plague-affected houses, etc. Of the rats found dead, 24.5 per cent. were demonstrated by microscopic, cultural and serological tests to be plague-infected; figures which agree with those of the latter part of the previous year. Of the trapped rats, only one was found to be plague-infected; to these must be added 119 rats or other wild rodents from the Nakuru district, which were examined by means of spleen smears brought in by a native specially trained in the section, in connection with a combined research by the Entomological and Bacteriological Sections of the Laboratory on the incidence of plague among wild rodents. The one positive case was a black rat caught in one group of 41 rats in the precincts of an Indian house wherein human plague cases had just occurred; therefore 2.4 per cent., at most, may be said to be the incidence of plague among such rats as are to be caught by trapping in plague-affected neighbourhoods.

Concentration upon rats found dead, and the bringing of these to the Laboratory for examination was first arranged by collaboration with the Nairobi Health Office in the latter part of 1926, since this proves to be the most certain means of detecting the onset of plague epizootics upon rats which give warning of ensuing human epidemics.

F.—HELMINTHOLOGICAL AND PROTOZOOLOGICAL SECTIONS.

1.—Examination of Faeces (Human).

Of a total of 4,398 faeces examined during 1927, 1,594 were negative, while the helminthic and protozoal infections of the remaining 2,804 specimens were distributed as follows :—

(1) Single Infections.

(*a*) *Helminths* (990 specimens).

Taenia saginata	303
Ascaris lumbricoides	168
Ancylostoma duodenale	212
Trichuris trichiura	197
Schistosomum mansoni	40
Strongyloides stercoralis	63
Oxyuris vermicularis	4
Hymenolepis nana	2
Hymenolepis diminuta	1

(*b*) *Protozoa* (215 specimens).

E. coli	116
Flagellates (undifferentiated)	22
I. butschlii	35
Giardia intestinalis	31
Endolimax nana	4
E. histolytica	6
Cysts (undifferentiated)	1

(2) Double Infections.

(*a*) *Helminths* (629 specimens).

Taenia and Ascaris	56
Taenia and Ancylostoma	79
Taenia and Trichuris	71
Taenia and S. mansoni	18
Taenia and Strongyloides	7
Ascaris and Ancylostoma	72
Ascaris and Trichuris	175
Ascaris and S. mansoni	8
Ascaris and Strongyloides	9
Ancylostoma and Trichuris	89
Ancylostoma and S. mansoni	12
Ancylostoma and Strongyloides	18
Trichuris and S. mansoni	5
Trichuris and Strongyloides	7
Trichuris and Oxyuris	1
S. mansoni and Strongyloides	1

(*b*) *Protozoa* (23 specimens).

E. coli and I. butschlii	13
E. coli and Giardia	5
E. coli and Flagellates	2
E. coli and E. histolytica	1
E. nana and E. histolytica	1
I. butschlii and Flagellates	1

(3) Triple Infections.

(*a*) *Helminths* (350 specimens).

Taenia, Ascaris and Ancylostoma	27
Taenia, Ascaris and Trichuris	54
Taenia, Ascaris and S. mansoni	2
Taenia, Ancylostoma and Trichuris	4
Taenia, Ancylostoma and S. mansoni	3
Taenia, Ancylostoma and Strongyloides	6
Taenia, Ancylostoma and Hymenolepis nana	1
Taenia, Trichuris and S. mansoni	5
Taenia, Trichuris and Strongyloides	3
Ascaris, Ancylostoma and Trichuris	150
Ascaris, Ancylostoma and S. mansoni	5
Ascaris, Ancylostoma and Strongyloides	8
Ascaris, Ancylostoma and Oxyuris	2
Ascaris, Trichuris and S. mansoni	3
Ascaris, Trichuris and Strongyloides	14
Ascaris, Trichuris and Oxyuris	1
Ascaris, S. mansoni and Strongyloides	1
Ancylostoma, Trichuris and S. mansoni	8
Ancylostoma, Trichuris and Strongyloides	12

(*b*) *Protozoa* (5 specimens).

E. coli, I. butschlii and Giardia	1
E. nana, I. butschlii and Giardia	1
E. nana, I. butschlii and E. coli	3

(4) Quadruple Infections.

(*a*) *Helminths* (170 specimens).

Taenia, Ascaris, Ancylostoma and Trichuris	69
Taenia, Ascaris, Ancylostoma and S. mansoni	1
Taenia, Ascaris, Ancylostoma and Strongyloides ...	1
Taenia, Ascaris, Trichuris and S. mansoni	1
Taenia, Ascaris, Trichuris and Strongyloides	1
Taenia, Ancylostoma, Trichuris and S. mansoni ...	3
Taenia, Ancylostoma, Trichuris and Strongyloides ...	7
Taenia, Ancylostoma, Trichuris and Oxyuris	1
Taenia, Ancylostoma, Trichuris and Hymenolepis nana	2
Ascaris, Ancylostoma, Trichuris and S. mansoni ...	6
Ascaris, Ancylostoma, Trichuris and Strongyloides ...	17
Ascaris, Ancylostoma, Trichuris and S. haematobium ...	1

(5) Quintuple Infections.

(*a*) *Helminths* (10 specimens).

Taenia, Ascaris, Ancylostoma, Trichuris and S. mansoni	6
Taenia, Ascaris, Ancylostoma, Trichuris and Strongyloides	3
Ascaris, Ancylostoma, Trichuris, Strongyloides and S. mansoni	1

(6) Mixed Infections of Helminths and Protozoa.

(*a*) *One Protozoa and One Helminth* (199 specimens).

Taenia and E. coli	32
Taenia and Flagellates	2
Taenia and I. butschlii	14
Taenia and Giardia	2
Taenia and E. nana	3
Taenia and Chilomastix	1
Ascaris and E. coli	21
Ascaris and Flagellates	3
Ascaris and I. butschlii	10
Ascaris and Giardia	3
Ascaris and E. histolytica	1
Ancylostoma and E. coli	30
Ancylostoma and Flagellates	6
Ancylostoma and I. butschlii	8
Ancylostoma and Giardia	11
Ancylostoma and E. nana	1
Ancylostoma and Cysts (undifferentiated)	1
Trichuris and E. coli	23
Trichuris and Flagellates	4
Trichuris and I. butschlii	6
Trichuris and Giardia	1
S. mansoni and E. coli	4
S. mansoni and I. butschlii	2
S. mansoni and Giardia	2
Strongyloides and E. coli	4
Strongyloides and Flagellates	2
Strongyloides and Giardia	1
Strongyloides and E. histolytica	1

(*b*) *One Protozoa and Two Helminths* (85 specimens).

Taenia, Ascaris and E. coli	2
Taenia, Ascaris and I. butschlii	2
Taenia, Ascaris and Flagellates	1
Taenia, Ascaris and Giardia	1
Taenia, Ancylostoma and E. coli	18
Taenia, Ancylostoma and Flagellates	1
Taenia, Ancylostoma and Chilomastix	1
Taenia, Ancylostoma and I. butschlii	3
Taenia, Trichuris and E. coli	8
Taenia, Trichuris and I. butschlii	1
Taenia, S. mansoni and E. coli	1
Taenia, Strongyloides and I. butschlii	1
Ascaris, Ancylostoma and E. coli	6
Ascaris, Ancylostoma and I. butschlii	1
Ascaris, Trichuris and E. coli	12
Ascaris, Trichuris and Giardia	1
Ascaris, Trichuris and I. butschlii	4
Ascaris, S. mansoni and E. coli	1
Ancylostoma, Trichuris and E. coli	11
Ancylostoma, Trichuris and Giardia	1
Ancylostoma, Trichuris and I. butschlii	1
Ancylostoma, Trichuris and Flagellates	1
Ancylostoma, Trichuris, and E. nana	1
Ancylostoma, S. mansoni and E. coli	1
Ancylostoma, S. mansoni and Giardia	1
Ancylostoma, Strongyloides and I. butschlii	1
Trichuris, Strongyloides and E. coli	1
S. mansoni, Strongyloides and E. coli	1

(*c*) *One Protozoa and Three Helminths* (45 specimens).

Taenia, Ascaris, Ancylostoma and E. coli	5
Taenia, Ascaris, Ancylostoma and I. butschlii	1
Taenia, Ascaris, Trichuris and E. coli	4
Taenia, Ancylostoma, Trichuris and E. coli	3
Taenia, Ancylostoma, Trichuris and E. nana	1
Taenia, Ancylostoma, S. mansoni and E. coli	1
Taenia, Ancylostoma, Strongyloides and Flagellates ...	1
Taenia, Ancylostoma, Strongyloides and E. coli ...	2
Taenia, Ancylostoma, Strongyloides and I. butschlii ...	1
Taenia, Trichuris, Strongyloides and E. coli	2
Ascaris, Ancylostoma, Trichuris and E. coli	16
Ascaris, Ancylostoma, Trichuris and I. butschlii ...	2
Ascaris, Ancylostoma, S. mansoni and E. coli	1
Ascaris, Trichuris, S. mansoni and Flagellates	1
Ascaris, Trichuris, Strongyloides and E. coli	3
Ancylostoma, Trichuris, Strongyloides and E. coli ...	1

(*d*) *One Protozoa and Four Helminths* (13 specimens).

Taenia, Ascaris, Ancylostoma, Trichuris and E. coli ...	6
Taenia, Ascaris, Ancylostoma, Trichuris and Flagellates	1
Taenia, Ascaris, Ancylostoma, Trichuris and I. butschlii	1
Taenia, Ascaris, Trichuris, S. mansoni and E. coli ...	2
Taenia, Ascaris, Trichuris, Strongyloides and E. coli ...	1
Ascaris, Ancylostoma, Trichuris, S. mansoni and E. coli	1
Ascaris, Ancylostoma, S. mansoni, Hymenolepis diminuta and E. coli	1

(*e*) *One Protozoa and Five Helminths* (2 specimens).

Taenia, Ascaris, Ancylostoma, Trichuris, S. mansoni and E. coli	1
Taenia, Ascaris, Ancylostoma, Trichuris, Oxyuris and E. coli	1

(*f*) *Two Protozoa and One Helminth* (29 specimens).

Taenia, E. coli and Giardia	1
Taenia, E. coli and I. butschlii	9
Taenia, E. coli and Chilomastix	1
Taenia, I. butschlii and Giardia	1
Ascaris, E. coli and I. butschlii	3
Ancylostoma, E. coli and Flagellates	1
Ancylostoma, E. coli and I. butschlii	2
Ancylöstoma, E. coli and Giardia	1
Ancylostoma, E. coli and E. nana	2
Ancylostoma, E. nana and I. butschlii	1
Trichuris, E. coli and I. butschlii	5
Trichuris, E. nana and Flagellates	1
S. mansoni, E. coli and I. butschlii	1

(*g*) *Two Protozoa and Two Helminths* (21 specimens).

Taenia, Ascaris, E. coli and E. histolytica	1
Taenia, Ancylostoma, E. coli and Flagellates	2
Taenia, Ancylostoma, E. coli and I. butschlii	1
Taenia, Ancylostoma, E. coli and E. nana	2
Taenia, Trichuris, E. coli and I. butschlii	1
Taenia, Trichuris, E. histolytica and Flagellates ...	1
Ascaris, Ancylostoma, E. coli and I. butschlii	2
Ascaris, Ancylostoma, E. coli, and Giardia	1
Ascaris, Ancylostoma, E. coli and E. nana	1
Ascaris, Trichuris, E. coli and I. butschlii	2
Ascaris, Trichuris, Cysts (undifferentiated) and I. butschlii	1
Ascaris, Hymenolepis nana, E. nana and I. butschlii ...	1
Ancylostoma, Trichuris, E. coli and I. butschlii ...	1
Ancylostoma, Trichuris, E. coli and E. nana	1
Ancylostoma, S. mansoni, E. coli and E. nana	1
Ancylostoma, Oxyuris, E. coli and I. butschlii	1
Trichuris, Strongyloides, E. coli, and I. butschlii ...	1

(*h*) *Two Protozoa and Three Helminths* (8 specimens).

Taenia, Ascaris, Ancylostoma, E. coli and Chilomastix	1
Taenia, Ascaris, Ancylostoma, E. histolytica and Chilomastix	1
Taenia, Ascaris, Ancylostoma, E. coli and I. butschlii ...	1
Taenia, Ascaris, Trichuris, E. coli and I. butschlii ...	1
Taenia, Trichuris, S. mansoni, E. coli and I. butschlii	1
Ascaris, Ancylostoma, Trichuris, E. coli and I. butschlii	1
Ascaris, Trichuris, Oxyuris, E. coli and I. butschlii ...	1
Ancylostoma, Trichuris, S. mansoni, E. coli, and I. butschlii	1

(*i*) *Two Protozoa and Five Helminths* (1 specimen).

Taenia, Ascaris, Ancylostoma, Trichuris, Strongyloides, E. coli and I. butschlii	1

(*j*) *Three Protozoa and One Helminth* (4 specimens).

Taenia, E. coli, I. butschlii and E. nana	1
Taenia, E. coli, I. butschlii and Giardia	1
Ancylostoma, E. coli, I. butschlii and Giardia	1
Trichuris, Chilomastix, I. butschlii and E. nana ...	1

(*k*) *Three Protozoa and Two Helminths* (4 specimens).

Taenia, S. mansoni, E. coli, I. butschlii and Giardia ...	1
Taenia, S. mansoni, E. coli, I. butschlii, E. histolytica	1
Ascaris, Trichuris, E. coli, I. butschlii and E. nana ...	1
Ancylostoma, Trichuris, E. coli, I. butschlii and Giardia	1

(*l*) *Five Protozoa and One Helminth* (1 specimen).

Ancylostoma, E. coli, Chilomastix, Giardia, I. butschlii and E. nana	1

In addition to these, there was one specimen that contained muscoid larvae.

In these specimens—

Taenia occurred 934 times;
Ascaris occurred 999 times;
Ancylostoma occurred 1,040 times;
Trichuris occurred 1,093 times;
S. mansoni occurred 153 times;
Strongyloides occurred 204 times;
Oxyuris occurred 12 times;
Hymenolepis nana occurred 6 times;
Hymenolepis diminuta occurred twice;
S. haematobium occurred once;
E. coli occurred 409 times;
Giardia occurred 71 times;
Flagellates occurred 53 times;
I. butschlii occurred 159 times;
E. nana occurred 29 times;
E. histolytica occurred 14 times;
Chilomastix occurred 7 times;
Cysts (undifferentiated) occurred 3 times.

2.—Examination of Faeces (Animal).

(*a*) *Rabbits.*—Of 64 specimens examined, 55 contained oocysts of E. steidiae.

(*b*) *Guinea Pigs.*—1 specimen examined was negative.

3.—EXAMINATION OF BLOOD (Human.)

	Differential Count Only.	Negative.	Neg. and Diff. Count.	P. falciparum.	P. falciparum and Count.	P. vivax.	P. vivax and Count.	P. malariæ.	P. malariæ and Count.	P. falciparum and P. vivax.	P. falciparum and P. malariæ.	P. vivax and P. malariæ.	Spironema rossi.	Sheathed Microfilariæ.	Unsheathed Microfilariæ.	Mixed Sheathed and Unsheathed Microfilariæ.	P. vivax and Unsheathed Microfilariæ.	P. falciparum and Unsheathed Microfilariæ.	P. falciparum and Sheathed Microfilariæ.	Full Blood Count.	Total White Count.	Blood Group.	Gametocytes, P. vivax.	Gametocytes, P. falciparum.	Gametocytes, P. malariæ.	Gametocytes, Mixed Infections.	Total, P. falciparum.	Total, P. vivax.	Total, P. malariæ.	Total, S. rossi.	Total, Sheathed Microfilariæ.	Total, Unsheathed Microfilariæ.
Native Hospital—Africans and Asians	2	3,638	31	596	2	4	1	24	..	1	1	..	15	..	28	2	..	3	..	34	3	..	..	27	7	..	603	6	25	15	2	33
Dispensary—Africans..	..	98	4	15	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	15	..	1	..	..	..
,, Asians	..	34	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
,, Europeans	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
M.O.H., Kisumu—Africans and Asians	..	1,649	..	1,873	..	77	..	132	..	25	15	1	..	5	31	..	1	11	1	..	..	..	8	34	46	13	1,925	104	148	..	6	43
Prison, Nairobi—Europeans	..	7	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..
,, ,, Africans	15	265	234	40	32	..	1	1	..	..	..	..	..	..	8	..	..	..	..	11	..	..	5	1	..	72	1	1	..	..	8
,, ,, Asians	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
European Hospital	4	26	123	6	26	1	3	1	..	2	..	..	..	..	..	..	..	..	..	3	..	..	1	2	..	1	34	6	1	..	..	..
Mental Hospital—Europeans	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
,, ,, Natives	..	78	1	8	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	9	1	1	..	..	1
Out-stations (Govt.)—Europeans, Asians and Afric.	..	29	6	6	1	..	..	..	..	..	..	..	..	..	3	..	..	..	..	..	1	..	..	..	..	..	7	..	..	..	..	3
Private Practitioners (Outside Nairobi)—Europeans, Asians and Africans	..	30	10	6	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	..	..	..	..
Nairobi Practitioners—Europeans	11	77	98	19	6	2	7	..	1	1	..	..	1	..	..	..	..	..	..	1	..	2	4	..	..	4	26	10	1	1	..	..
,, ,, Asians	..	6	22	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	..	..	..	2	..	..	..	..	..
,, ,, Africans	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dr. Sargent—Europeans, Asians and Africans ..	1	182	23	49	1	5	..	4	..	1	..	..	1	..	..	..	..	..	..	1	..	..	1	..	..	..	51	6	4	1	..	..
M.O.H., Nairobi—Asians	..	879	..	41	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41	..	..	..	..	..
,, ,, Africans	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..
Laboratory—Europeans	..	11	19	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	1	..	..	..	1	..	..	..	..	..
,, Asians	..	4	..	1	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	2	..	..	..	..
,, Africans	..	8	..	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	..	2	..	1	..	..	..
Juja—Africans..	..	501	..	355	..	2	..	25	..	..	..	..	..	..	3	..	..	1	..	..	..	..	..	22	10	..	356	2	25	..	..	4
TOTAL ..	33	7,529	575	3,023	70	92	12	190	1	32	16	1	17	5	74	2	1	15	1	71	5	2	14	92	64	16	3,157	138	208	17	8	92

4.—Examination of Blood (Animal).

(*a*) *Oxen.*—Total red cell count, estimation of haemoglobin and a differential white cell count was carried out on 16 oxen.

(*b*) *Calves.*—Of 19 calves examined, the blood of two was found to be infected with Th. parva.

(*c*) *Dogs.*—Of 9 dogs examined, the blood of 6 was found to be infected with B. canis.

(*d*) *Horses.*—The blood of one horse was examined for parasites, but proved negative.

5.—Miscellaneous Specimens.

(*a*) Urines.—17 urines were examined for S. haematobium, which was present in 2 specimens.

(*b*) 9 *Gland, Liver and Spleen* smears were examined microscopically, and all proved negative.

(*c*) *Pediculi.*—A batch of 10 pediculi was examined for S. rossi infection, but proved negative.

(*d*) *Stomach Contents.*—One specimen was examined for parasites, and proved negative.

(*e*) 2 *Swabs* and a stain on clothing were examined for spermatozoa, but proved negative.

(*f*) *Hairs* from a kitten were found to be infected with ringworm spores.

(*g*) A batch of 96 *Snails*, received for investigation as to Bilharzia infection, were found to be infected with bifid cercariae; but up to date their identity has not been ascertained.

G.—SECTION OF MEDICAL ENTOMOLOGY.

1.—Organisation.

A second Medical Entomologist joined the staff in March, but owing to the absence on leave of the Senior Medical Entomologist, no great extension of work in view of this increase has yet been possible. The native staff now consists of 16 boys, of whom several have been with the section for two years, and are becoming efficient.

Accommodation is still in the unsatisfactory state of past years, and much work which ought to be done here (including all transmission experiments) is impossible to carry out under present conditions.

The number of insects received for identification shows a small increase, chiefly owing to the receipt of a great many specimens from Mombasa. As in past years, the vast majority sent in are fleas and mosquitoes from localities where regular surveys are being undertaken. A small number of other insects of medical interest is sent in either for identification or for our type collection by medical officers and others. It would be of great advantage if medical officers would make more use of this section of our work; little is known in this country about insects of medical importance other than fleas and mosquitoes, and practically nothing of their distribution. Specimens of any biting insects and ticks are always of interest.

The type collection of insects of medical interest has been largely increased by a generous gift of nearly three hundred specimens belonging to ninety species from the Imperial Bureau of Entomology. The collection now contains over a thousand specimens belonging to nearly two hundred species.

2.—Tsetse Fly.

As last year, little work has been done on the tsetse fly problems. Surveys of two areas of lake shore (Seme and Uyoma) were made at the request of the Administration in June. Reports on these areas were submitted together with recommendations for control. No report has been received as to the carrying out of any of the measures recommended.

3.—Mosquitoes.

The periodical surveys in Nairobi, Fort Hall, Kyambu, Kisumu, Kisii, Nakuru, Ngong, and Juja, have been continued through the year. Surveys have also been carried out regularly at Kitale and Eldoret; at Mombasa it has not yet been possible to carry out systematic larval-surveys, but adults are

collected daily. The surveys at Nairobi, Juja and Ngong are under the immediate direction of the Medical Entomologist; those in the other localities are carried out by trained Africans under the supervision of the local medical authorities, or (in Kyambu) the District Commissioner, supplemented by visits, when other work allows, by the Medical Entomologist.

A survey was also carried out by the Medical Entomologist of two large sisal estates at Masongaleni and Kibwezi, and a report was submitted including suggestions for control.

At the request of the Medical Officer of Health, Kisumu, an intensive survey of the town and its neighbourhood was undertaken, and a report submitted. An analysis of all surveys before the departure on leave of the Senior Medical Entomologist, together with keys for the identification of adults and larvae of the commoner species of Anopheles, was submitted by him for publication.

Two species of *Anopheles* previously unrecorded in Kenya have been discovered during the year. One (new to science, which has been named *Anopheles symesi*) was taken at Kisumu, the other, *A. implexus*, was bred from larvae at Kitale. Nothing is known as to the malaria-carrying power of either.

4.—Ticks.

Further observations have been made on the longevity of unfed ticks (*Ornithodorus moubata*). A few of the unfed young from Fort Hall referred to in the 1926 Report are still alive, having survived up to date a period of seven hundred and ten days. Similar experiments are being carried out with *Argas persicus*.

5.—Bed-bugs and Lice.

A case of a typhus-like disease occurred on a farm, the boys' quarters of which were heavily infested with bugs. The patient had a history of contact with lice about ten days prior to the commencement of symptoms, but none could be found when the case was investigated.

6.—Fleas.

Regular surveys of rat-fleas in Nairobi, Machakos, Kisii and Kisumu are being continued, and specimens are now being received from Mombasa also. The latter is of special interest as being the only locality in the country where *Xenopsylla astia* is known to occur. A special survey of field and domestic rodents is in progress in the Nakuru District, the main object being to discover whether plague exists among the former and whether they carry the same species of fleas as the domestic rodents. In the course of this survey two hundred and fifty specimens of rodents have been collected in this district up to date, but examination of the spleen smears has shown none (either domestic or otherwise) positive for plague.

The Medical Officer of Health, Nakuru (Dr. Martin) found a number of specimens of *Arvicanthus abyssinicus* infected with plague prior to the commencement of the survey, and this observation, coupled with the fact that *Xenopsylla cheopis* (the best-known carrier of plague) has been demonstrated by the survey to be as common on field rodents as on the domestic species in the same district, shows that they must be regarded with grave suspicion. This work is being continued. Every opportunity is being taken to obtain fleas from the small carnivores and from rodents such as the spring-hare, which has been accused in South Africa of being the means by which plague is spread from one colony of rodents to another at a distance, but such opportunities have so far been very few.

7.—Myiasis.

Only two cases of myiasis were reported during the year. In one case a very large number of larvae, which were provisionally identified as belonging to species of the genera *Sarcophaga* and *Lucilia* were found at the Native Civil Hospital, Mombasa, in the brain substance of a woman, exposed by a chronic ulcer. The other specimen was a single immature larva, apparently of *Sarcophaga* sp., passed in a stool by a European child in Nairobi. Blood and mucus were present in the stool, but there were no other symptoms. All the specimens were sent in dead, so that exact identification is impossible.

Medical officers would be doing a very great service to the knowledge of medical entomology in Kenya if they would send in specimens of myiasis-causing larvae whenever found; there is little doubt that cases are of much more frequent occurrence in the country than the above would indicate. If possible, it is far preferable that the larvae should be sent in alive so that an attempt may be made to rear the adults with a view to the exact determination of the species concerned.

H.—MEDICO-LEGAL SECTION.

Nineteen articles were submitted by the Police Department during the year for examination for human blood or for semen. These were duly reported on and evidence given in legal proceedings.

Certain foodstuffs, vomit, stomach contents, etc., were also submitted for poison. These were dealt with in the Analytical Section.

I.—BIOCHEMICAL SECTION.

Duties in the Biochemical Section were taken over by Dr. Harvey on the 14th November, 1927, and the work reported here is therefore largely that of Dr. Kelly.

The work carried out may conveniently be divided into two classes :—

(1) Routine work;
(2) Research work.

1.—Routine Work.

Work under this heading included the routine analysis of urine, faeces, blood, etc., and the following table shows the nature and the number of such examinations :—

Urines—General examination	157
Urines—Albumin content	31
Urines—Sugar content	23
Urines—Urea content	10
Blood—Non-protein nitrogen content	4
Sugar tolerance curves	4
Faeces—Occult blood	2
Urine—Chloride content	2
Urine—Occult blood	1
Urine—Bismuth content	1
Stomach contents—Acidity	1
Cerebro-spinal fluid—Sugar content	1

The work started in 1926 for the Medical Entomologist on the hydrogen ion concentration of certain waters was continued, and also the preparation of the following bismuth compounds for the treatment of yaws, *viz.* : sodium potassium bismuth tartrate, sodium tetra-bismuth tartrate, and metallic bismuth in suspension in glucose.

2.—Research Work.

In continuation of the work under the scheme of investigation into native dietetics, metabolic and growth experiments were carried out at the Nairobi Prison. The results of the earlier part of this work have been reported in the Kenya Medical Journal (Vol. 4, p. 232), and those of the latter experiments are, or will shortly be, in the press.

Dr. J. M. Henderson, Nutrition Officer, appointed by the Civil Research Council to investigate tropical ulcers, has given assistance in the work of the section during the year. The Laboratory has afforded facilities and co-operation in his investigations into certain problems of native nutrition and ulcers, which are being carried out under the auspices of the Civil Research Council. This work has involved a large number of analyses of biological material from the Native Civil Hospital and from the Nairobi Prison, where concurrent clinical research is being pursued.

Further, a good deal of strain has been thrown on the resources of the Biochemical Section by the preparation for analysis of certain samples of native foodstuffs which are periodically forwarded by an officer working in the Native Reserves. When suitably prepared, these samples are despatched to the Rowett Research Institute, Aberdeen, for detailed analysis.

In addition to the work in the Biochemical Section reported above, the duties of the Government Analyst's Section were carried out by Dr. Kelly from January 1st until February 6th.

J.—ANALYTICAL SECTION.

1.—Milks.

Two hundred and fifty-three samples of cow's milk were examined, of which one hundred and twenty-one were adulterated. With the exception of two samples which were analysed at the request of the Police, all these milks were examined for the Medical Officer of Health, Nairobi.

Two samples of human milk and one sample of mare's milk were examined.

2.—Waters.

Seventy-eight samples of water were examined during the year, fifty-eight of which were of good quality. Forty-nine of these samples were examined as to their suitability for drinking purposes. Two samples were analysed for the Kenya and Uganda Railway, three for the Tanganyika Railway, twenty-two for the Public Works Department, Nairobi, seven for the Public Works Department, Tanganyika, one for the Health Office, Nakuru, two for the Health Office, Kisumu, one for the Health Office, Eldoret, and eleven for private individuals. One sample was analysed for the Kenya and Uganda Railway for use for electric storage batteries, and three samples for the Public Works Department for making concrete.

3.—Foods and Liquors.

Fifty samples of food and liquor were analysed during the year :—

12 samples of maize meal.
1 sample of " bakers' " flour.
2 samples of maize flour.
12 samples of posho.
1 sample of mealie meal.
2 samples of ground nuts.
1 sample of Mwanza cooking fat.
2 samples of herbs (for poison).
1 sample of bread
1 sample of porridge.
2 samples of butter.
13 samples of native beer.

4.—Minerals and Assays.

Eleven samples of minerals and assays were analysed during the year :—

1 sample of lime.
6 samples of sand.
1 sample of zinc filings.
2 samples of stone.
1 sample of supposed coal (proved not to be coal).

5.—Miscellaneous.

Thirty-nine miscellaneous samples were analysed during the year :—

3 samples of Mvuli timber.
1 sheet of blank paper.
21 articles from fire.
1 registered envelope.
1 bottle containing small quantity of liquid.
1 piece of rag.
1 sample of chippings from a wooden joist.
1 sample of wattle extract.
1 sample of sawdust.
2 samples of wood.
4 arrows.
1 sample of wood preservative.
1 sample of creosote oil.
1 sample tiles.